United Nations S/2015/138

Security Council

Distr.: General
25 February 2015

Original: English

Letter dated 25 February 2015 from the Secretary-General addressed to the President of the Security Council

I have the honour to transmit herewith the seventeenth monthly report of the Director-General of the Organization for the Prohibition of Chemical Weapons (OPCW), submitted pursuant to paragraph 12 of Security Council resolution 2118 (2013) (see annex). The report covers the period from 23 January to 22 February 2015.

I am pleased to note that the destruction of the remaining 12 chemical weapons production facilities in the Syrian Arab Republic is continuing and that the destruction of the first and second underground structures has now been verified by OPCW.

With regard to the Syrian Arab Republic's initial declaration and subsequent amendments, OPCW technical experts are continuing their dialogue with the Syrian authorities. Since my previous letter (S/2015/56), the OPCW Declaration Assessment Team has carried out a visit to the Syrian Arab Republic to hold further consultations with the Syrian authorities and to continue technical-level discussions. As I have previously underlined, continuing cooperation between the Syrian authorities and OPCW remains critical for the resolution of any outstanding issues in this regard.

As you are aware, on 4 February 2015 I received a communication from the Director-General of OPCW transmitting the decision of the Executive Council regarding the reports of the fact-finding mission that is looking into allegations of the use of toxic chemicals as weapons in the Syrian Arab Republic. I conveyed that communication to the President of the Security Council by way of a letter dated 6 February 2015 (S/2015/95). In that decision, the Executive Council, among other things, noted the Director-General's statement that he would include the reports of the fact-finding mission, along with information on any discussions within the Executive Council on the work of the mission, as part of his monthly reports that he forwarded to the Security Council. Accordingly, the three reports of the fact-finding mission released to date are attached herewith (see annex, enclosures II-IV). Information on related discussions by the Executive Council is provided in the regular monthly report of the Director-General.

The work of the fact-finding mission is continuing. As always, I take this opportunity to reiterate my unequivocal condemnation of the use, by any party to the conflict, of toxic chemicals as weapons.

I should be grateful if you would bring the present letter and its annex urgently to the attention of the members of the Security Council.

(*Signed*) **BAN** Ki-moon

15-02871 (E) 020315

Please recycle

Annex

I have the honour to transmit to you my report entitled "Progress in the elimination of the Syrian chemical weapons programme", prepared in accordance with the relevant provisions of Executive Council decision EC-M-33/DEC.1 of the Organization for the Prohibition of Chemical Weapons, and Security Council resolution 2118 (2013), both dated 27 September 2013, for transmission to the Security Council. My report covers the period from 23 January to 22 February 2015 and also covers the reporting requirements of Executive Council decision EC-M-34/DEC.1, dated 15 November 2013. Please also find attached the three reports by the fact-finding mission mandated to establish the facts surrounding the allegations of use of chlorine as a weapon in the Syrian Arab Republic.

(*Signed*) Ahmet **Üzümcü**

Enclosure I

Note by the Director-General of the Organization for the Prohibition of Chemical Weapons

Progress in the elimination of the Syrian chemical weapons programme

1. In accordance with subparagraph 2(f) of the decision by the Executive Council (hereinafter "the Council") at its Thirty-Third Meeting (EC-M-33/DEC.1, dated 27 September 2013), the Technical Secretariat (hereinafter "the Secretariat") reports to the Council on a monthly basis regarding the implementation of that decision. In accordance with paragraph 12 of United Nations Security Council resolution 2118 (2013), the report by the Secretariat is also submitted to the Security Council through the Secretary-General. This is the seventeenth such monthly report.

2. The Council, at its Thirty-Fourth Meeting, adopted a decision entitled "Detailed Requirements for the Destruction of Syrian Chemical Weapons and Syrian Chemical Weapons Production Facilities" (EC-M-34/DEC.1, dated 15 November 2013). In paragraph 22 of that decision, the Council decided that the Secretariat should report on its implementation "in conjunction with its reporting required by subparagraph 2(f) of Council decision EC-M-33/DEC.1".

3. The Council, at its Forty-Eighth Meeting, also adopted a decision entitled "Reports of the OPCW Fact-Finding Mission in Syria" (EC-M-48/DEC.1, dated 4 February 2015).

4. This report is therefore submitted in accordance with the above-mentioned Council decisions. It includes information relevant to their implementation during the period from 23 January to 22 February 2015.

Progress achieved by the Syrian Arab Republic in meeting the requirements of EC-M-33/DEC.1 and EC-M-34/DEC.1

5. Progress achieved within the current reporting period by the Syrian Arab Republic in fulfilling its obligations as per decisions EC-M-33/DEC.1 and EC-M-34/DEC.1 is described below:

(a) With respect to the destruction and verification of the 12 chemical weapons production facilities (CWPFs) (seven aircraft hangars and five underground structures) in the Syrian Arab Republic as per Council decision EC-M-43/DEC.1 (dated 24 July 2014), significant progress has been made since the start of the destruction operations on 24 December 2014. The destruction of the first underground structure was fully completed on 31 January 2015 and the final inspection report was signed on 9 February 2015. The second underground structure was verified by the OPCW team as destroyed on 22 February 2015. Destruction operations are currently under way at two of the three other underground structures. Regarding the destruction of the aircraft hangars, the preparatory works have been completed at five sites where the soil covering the hangars has been removed. The equipment required for the destruction of the aircraft hangars has been moved to the first site scheduled to be destroyed. With regard to the planned time frame, it is expected that the destruction of all five underground structures will be completed before 30 June 2015. The operations to destroy the seven aircraft hangars are

expected to be fully completed shortly thereafter. Another meeting of the Steering Committee also took place to discuss all relevant details concerning the destruction of the 12 CWPFs.

(b) Pursuant to paragraph 19 of EC-M-34/DEC.1, the Syrian Arab Republic is required to submit a monthly report to the Council regarding activities on its territory related to the destruction of its chemical weapons and CWPFs. The fifteenth such report was submitted to the Secretariat on 16 February 2015 (EC-78/P/NAT.3, dated 16 February 2015).

(c) In accordance with subparagraph 1(e) of EC-M-33/DEC.1 and paragraph 7 of United Nations Security Council resolution 2118 (2013), the Syrian Arab Republic shall cooperate fully with all aspects of the implementation of the decision and the resolution. The Syrian authorities have continued to extend the necessary cooperation during the reporting period.

Progress in the elimination of Syrian chemical weapons by States Parties hosting destruction activities

6. As reported previously, all declared chemicals have been removed from the territory of the Syrian Arab Republic, while all declared stocks of the Category 1 chemicals have been destroyed, with only one Category 2 chemical remaining to be destroyed. As at the cut-off date of this report, 89.8% of the Category 2 chemicals had already been destroyed, representing a combined total of 98%, including the isopropanol previously destroyed in the Syrian Arab Republic. The following subparagraphs provide information on the destruction of the remaining Category 2 chemical and the effluents at commercial facilities selected pursuant to paragraph 24 of EC-M-34/DEC.1, and at facilities sponsored by States Parties pursuant to paragraph 7 of decision EC-M-36/DEC.2 (dated 17 December 2013):

(a) As at the cut-off date of this report, a total of 16.5% of the only remaining Category 2 chemical had already been destroyed at Veolia ES Technical Solutions, LLC in the United States of America and at Mexichem UK Limited in the United Kingdom of Great Britain and Northern Ireland. Destruction of the only remaining chemical at these two facilities is currently on hold as technical issues are sorted out.

(b) As at the cut-off date of this report, 57.5% of the DF effluent and 86.3% of the HD effluent, which were produced by the neutralisation process on board the United States Vessel MV Cape Ray, had already been destroyed by Ekokem in Finland and at the GEKA facility in Germany, respectively.

7. The Secretariat will continue to provide information on the aforementioned destruction activities during briefings to States Parties in The Hague and through the monthly reports. Timelines for the completion of the destruction of Syrian chemical weapons were provided in the overall report on the elimination of the Syrian chemical weapons programme (paragraph 25 of EC-76/DG.16, dated 4 July 2014), which was noted by the Council at its Seventy-Sixth Session. While the Secretariat is not able to give a forecast at this stage about the completion of the destruction of the remaining chemical in the United Kingdom of Great Britain and Northern Ireland and the United States of America, estimates for Germany and Finland remain the end of March and June 2015, respectively.

Activities carried out by the Secretariat with respect to the Syrian Arab Republic

8. Cooperation with the United Nations Office for Project Services (UNOPS) has continued in the context of the OPCW Mission in the Syrian Arab Republic. As at the cut-off date of this report, four OPCW staff members were deployed as part of that Mission. Ambassador José Artur Denot Medeiros of Brazil, in his capacity as Special Adviser to the Director-General on Syria, travelled to Damascus for meetings with senior Syrian officials, UNOPS staff, and the United Nations Designated Official in Syria, from 25 to 27 January 2015.

9. The Director-General has continued to meet with senior representatives of the States Parties hosting a destruction facility or otherwise providing assistance with the destruction of Syrian chemical weapons. He also communicated regularly with senior officials from the Government of the Syrian Arab Republic. As requested by the Council at its Seventy-Fifth Session (paragraph 7.12 of EC-75/2, dated 7 March 2014), the Secretariat has continued to provide regular information briefings to States Parties in The Hague on behalf of the Director-General.

10. As stipulated by the Council at its Seventy-Sixth Session (paragraph 6.17 of EC-76/6, dated 11 July 2014), the Secretariat and the Syrian authorities continue to cooperate on outstanding issues regarding the Syrian declaration. From 25 January to 5 February 2015, the Declaration Assessment Team visited the Syrian Arab Republic for the seventh time in order to hold further consultations with the representatives of the Syrian National Authority and to continue technical-level discussions. Visits were carried out at two sites where samples were collected. These samples, together with those taken during previous visits, were transported to the OPCW Laboratory and to two designated laboratories for analysis. Further consultations with the Syrian authorities will be held with a view to updating the Syrian declaration, and the next visit has been scheduled towards the end of March 2015.

11. As reported previously, the implementation of additional special monitoring measures, as specified in Note EC-M-43/DG.1/Rev.1 (dated 21 July 2014), will include the use of a vault monitoring system, which is based on technology already in use by the International Atomic Energy Agency. The Secretariat has finalised all administrative requirements for the first phase of implementing the monitoring system in the underground structures, and has also finalised the administrative requirements for the delivery of the system by Aquila Technologies. The implementation of the special remote monitoring system will be in line with the agreed time frame for the planned construction activities related to the interior plugs. Fibre-optic cables have been already installed and successfully tested in two interior plugs at two underground structures. The supplier of the special monitoring system, Aquila Technologies, will provide training for operators on system installation and operation at the OPCW in The Hague in April 2015, to coincide with the delivery by Aquila Technologies to the OPCW of the first set of the special monitoring system to be installed in the Syrian Arab Republic.

Supplementary resources

12. As at the cut-off date of this report, the total contributions of EUR 50.3 million in the Syria Trust Fund for the Destruction of Chemical Weapons and the contributors thereto remained unchanged compared to the previous report.

13. As reported previously, the Secretariat had approached the Syrian Government with a request for reimbursement of costs relating to verification activities for the period from September 2013 to August 2014, amounting to EUR 2.3 million. The request was made in keeping with States Parties' obligations under Articles IV and V of the Chemical Weapons Convention (hereinafter "the Convention"). The Syrian authorities have indicated that they remain unable to cover these costs on the basis of the reasons stipulated at the time that the Syrian Arab Republic joined the Convention.

Activities carried out with regard to the Fact-Finding Mission

14. At the conclusion of its Forty-Eighth Meeting on 4 February 2015, the Council adopted a decision entitled "Reports of the OPCW Fact-Finding Mission in Syria" (EC-M-48/DEC.1) in which it, inter alia, "expresses serious concern regarding the findings of the Fact-Finding Mission, made with a high degree of confidence, that chlorine had been used as a weapon in Syria in the villages of Talmenes, Al Tamanah, and Kafr Zita from April to August 2014".

15. Delegations addressing the Council at its Forty-Eighth Meeting expressed their positions on the work undertaken by the Fact-Finding Mission and on its three reports. The Council heard expressions of support for the work done thus far by the Mission. Some doubts and questions were also raised in regard to the procedures and methods followed by the Mission. For his part, the Director-General underscored the integrity and professionalism of the Fact-Finding Mission and the validity of its work and conclusions.

Conclusion

16. The main focus of the future activities of the OPCW Mission in the Syrian Arab Republic will continue to be on the destruction of the 11 remaining CWPFs and the installation of the special remote monitoring system in the five underground structures. The Declaration Assessment Team and the Fact-Finding Mission will also continue their work in the Syrian Arab Republic.

Enclosure II

Note by the Technical Secretariat of the Organization for the Prohibition of Chemical Weapons

Summary report of the work of the OPCW Fact-Finding Mission in Syria covering the period from 3 to 31 May 2014

1. On 29 April 2014, the Director-General announced the creation of an OPCW Fact-Finding Mission in Syria. The Mission was mandated to establish the facts surrounding allegations of the use of toxic chemicals, reportedly chlorine, for hostile purposes in the Syrian Arab Republic.

2. The summary report of the Fact-Finding Mission is hereby circulated for the information of States Parties to the Chemical Weapons Convention.

Annexes:

Annex 1: Cover Note by the Head of the OPCW Fact-Finding Mission in Syria

Annex 2: Summary Report of the Work of the OPCW Fact-Finding Mission in Syria Covering the Period from 3 to 31 May

Annex 1
Cover note by the Head of the OPCW Fact-Finding Mission in Syria

16 June 2014

Director-General,

Submitted herewith for your perusal and action as deemed appropriate is a summary report of the OPCW Fact-Finding Mission in Syria covering the period from 3 to 31 May 2014.

Malik Ellahi

Head of the FFM

Annex 2
Summary report of the work of the OPCW Fact-Finding Mission in Syria covering the period from 3 to 31 May 2014

Introduction

1. With repeated allegations of the use of toxic chemicals for hostile purposes at a number of locations in the Syrian Arab Republic, on 29 April 2014 the Director-General announced the formation of a Fact-Finding Mission (FFM), "to establish facts surrounding allegations of use of chlorine in the Syrian Arab Republic". The allegations mainly referred to the use of chlorine in a number of provinces that the Syrian Government does not consider to be under its effective control, more specifically, in Hama, Idlib, and Rif Damascus.

2. The Syrian Government, which had given its consent for the FFM, also agreed to the "terms of reference" that would govern its work. Apart from the necessary legal guarantees that would allow the FFM to execute its mandate, including security assurances for areas under governmental control, the terms of reference outlined the activities that the FFM was expected to undertake.

3. The FFM was set up with the full awareness that, being the first OPCW-led mission that would physically cross confrontational lines, it would face unprecedented security risks. The official OPCW press release regarding the FFM stated that "[t]he mission will carry out its work in the most challenging circumstances."

Basis for the FFM

4. While offering a constructive means of clarifying the aforementioned allegations, the establishment of the FFM was based on the general authority of the OPCW Director-General to seek to uphold at all times the object and purpose of the Chemical Weapons Convention; this authority is reinforced in the present instance by the relevant decisions of the OPCW Executive Council and the United Nations Security Council resolution (UNSCR) 2118 (2013); the general endorsement by the Executive Council of the FFM; and its acceptance by the State Party concerned through an exchange of letters on the subject between the Director-General and the Government of the Syrian Arab Republic, dated 1 and 10 May 2014, respectively.

Cooperation with the United Nations

5. Following consultations with the Director-General, on 26 April 2014, the United Nations Secretary-General pledged full support for the FFM by the United Nations. The modalities of this support are outlined in letters between the Director-General and the Secretary-General dated 25 April, and 2 and 5 May.

6. The support by the United Nations encompasses: the provision of safety and security support and advice to the OPCW; the provision of logistical support; and assistance with liaising and coordinating, in particular, with opposition representatives on the security, logistical, and operational aspects of the OPCW FFM, as may be required, for the safe access and movement of OPCW personnel, any accompanying United Nations personnel, and their equipment and samples within the areas to be visited in the Syrian Arab Republic, including liaising with

the opposition representatives for the purposes of making available persons for interviews.

7. The FFM received the full cooperation and support of the United Nations, and the staff assigned to work with the Team displayed a high standard of professionalism and commitment.

FFM Strategic Concept of Operations

8. In order to state unambiguously the aims and objectives of the FFM and to create a framework for the FFM's operational concept, planning, and implementation, including the possibility of field visits, an internal document entitled "FFM Strategic Concept of Operations (CONOPS)" was drafted and finalised.

9. The CONOPS describes the establishment by the Director-General of the FFM as signaling "the determination of the OPCW that, despite the difficult security situation prevailing in the SAR, it will take serious notice of allegations of use of chemical weapons. By making every effort to bring to light the facts surrounding these allegations, the international community can bring to bear its influence on those who might consider such actions immune from censure".

Conceptual considerations, including selection of sites; preparation and conduct of site visits

10. Due to its manifold civilian applications, chlorine is a widely available chemical. It is a chemical that is non-persistent, making conclusive evidence of its use a challenging task.

11. Given this fact, the conduct of site visits at the locations of the alleged incidents was considered a key source for gathering as much evidence and as many facts surrounding the allegations as possible. To this end, the planned FFM activities at the locations included:

(a) the conduct of interviews with casualties of the alleged incidents, as well as first responders, treating physicians, and eye witnesses to the incident;

(b) the collection, review, and analysis of documentation relevant to the alleged incidents, including clinical histories, admission records, and investigation reports of casualties and autopsy findings, if available, of victims;

(c) the collection of samples, including biomedical and post-mortem, as required, of alleged casualties/victims; and

(d) the collection of environmental samples; and

(e) the review and analysis of munitions or remnants of munitions reportedly used to carry out the attacks, if deemed feasible and safe.

12. All reported incidents took place at locations that the Syrian Government considers to be outside its effective control. Therefore, elements considered crucial for the success of the FFM were identified as:

(a) identification of key actors, such as local authorities and/or representatives of armed opposition groups in charge of the territories in which these locations are situated;

(b) establishment of contacts with these groups in an atmosphere of mutual trust and confidence that allows the mandate and objectives of the FFM to be communicated;

(c) provision of credible assurances of safe access and passage and/or escort for the FFM Team on the part of the armed groups in charge of the relevant areas and willingness and agreement by the armed groups to allow for and actively prepare the work of the FFM Team on the ground prior to the Team's entry; and

(d) assurances by the Syrian Arab Republic for escort to the last checkpoint prior to entry into areas the Syrian Government considers outside its effective control and escort upon exit from these territories.

13. Furthermore, the field operation(s) associated with access to the alleged locations, and the carrying out of the planned activities on site, were envisaged to be conducted under conditions of an active war zone, namely, in a dynamic high-risk security environment involving various factions of armed opposition groups, as well as numerous and shifting confrontation lines.

14. With a view to managing the practical aspects of safe access and passage to the selected locations, and the safety and security of the FFM members throughout the operation, the Office of United Nations Department of Safety and Security (UNDSS) in the Syrian Arab Republic (hereinafter "UNDSS Syria"), which is in charge of the Security Cell for the FFM, was to prepare and manage a multi-layered security concept, including security risk assessments and security and contingency plans, and coordinate the integration of aspects related to communications and logistics into the security planning process.

15. The FFM could request access to sites other than those initially identified in the terms of reference.

Safety and security of the FFM

16. The safety, security, and well-being of the FFM staff being a high priority while enabling the effective discharge of their operations, the entire work of the FFM was placed under the framework of the United Nations Security Management System (UNSMS) and the direction of the Designated Official (DO) for the Syrian Arab Republic.

17. UNDSS Syria provided advice, guidance and technical assistance. To this end, UNDSS Syria dedicated a security cell to the FFM coordinated by the Chief Security Adviser (CSA) of UNDSS Syria, under the overall authority and guidance of the United Nations DO, who also serves as the Resident Coordinator (RO) for Syria.

18. The ultimate authority to take a "go/no go" decision, accepting the risk level of deployment for a field mission, rested with the Director-General and the Secretary-General in accordance with the UNSMS accountability framework.

19. The Advance Team established contacts with representatives of UNDSS Syria, including the DO and the CSA, immediately upon arrival in Damascus, and engaged in a regular close consultation process with the UNDSS on all matters related to security and safety of the FFM, including through the designated FFM Security Cell.

Activities of the FFM

20. Upon arrival in Damascus on 3 May 2014, the Advance Team commenced preparations and planning of activities. These included preparations for the deployment of the remainder of the Team and the initial collection and analysis of information and identification of options and next steps, in particular with regard to site visits. The Advance Team established contacts with representatives of the Government of the Syrian Arab Republic, various components of the United Nations, and other relevant actors in order to gather information and to select suitable locations for possible field visits.

Meetings with the Government of the Syrian Arab Republic

21. The Vice Minister of the Syrian Arab Republic, H.E. Mr Faisal Mekdad, invited the OPCW Advance Team to a meeting at the Foreign Ministry on 4 May 2014. The meeting was attended, inter alia, by officials of the Ministry of Foreign Affairs, including General Hassan Al-Sharif, and the Ministry of Defence of the Syrian Arab Republic.

22. The Minister welcomed the Team to the Syrian Arab Republic and noted the mutual determination to achieve the success of the FFM, as well as the expectation that the FFM would be conducted in an independent and impartial manner. Furthermore, the Minister stated that the FFM was supported at the highest level of Syrian authorities, including the political and military levels, and expressed his Government's commitment to providing all necessary support, in particular as regards the security and protection of the Team. He informed the Team that the Government had learned about the alleged incidents of use of chlorine from some States and that their own enquiries had not yielded any reports of the hospitalisation of victims or reports by local authorities to that effect. He added that this enquiry excluded field hospitals in rebel-held areas. The Minister further stated that a National Commission had been established to investigate any further incidents that might occur in the future.

23. Over the course of the following days, the Advance Team met with General Al-Sharif and his team. In these meetings, the position of the Syrian Government that armed terrorist groups, some of which included foreigners, were engaged in efforts to obtain and use toxic chemicals was elaborated upon. Incidents of smuggling of certain chemicals across the borders from neighbouring countries were highlighted. The FFM members were also informed that at two locations, in Tartous and Al-Bayda, chemicals had been captured from armed opposition groups (AOGs) and that a chlorine-producing plant located some 40 kilometers from Aleppo had been seized by armed groups. The delegation presented a video at the meeting showing an apparently abandoned plant being visited by a camera crew from one of the AOGs interviewing two guards at the facility. The General further recalled that, on 8 December 2012, the Syrian Permanent Representative to the United Nations in New York had asked for the United Nations Supervision Mission in Syria (UNSMIS) to make an inventory of the chemicals at the plant. The UNSMIS contingent heading for the plant was fired upon and the effort was aborted.

24. In addition, several videos from social media websites and other open source information was provided to the FFM in support of the position of the Syrian Government, together with other documents, such as reports about intercepted communications.

25. These discussions concluded with the FFM stressing the importance of primary material, preferably Government documentation that would serve to validate some of the material, such as original transcripts of the intercepts and additional information regarding the confiscated chemicals at Tartous and Al Bayda. The FFM undertook to reflect in its report the perception of the Syrian Government regarding the threat from non-State actors seeking to obtain and use toxic chemicals for unlawful purposes. It will also look into the requests made by the Syrian Government to follow up on some of the information that it has provided.

Team preparations in Damascus

26. By 18 May, the FFM team had reached full strength. The FFM office was set up at the Four Seasons Hotel.

27. The work of the Team and preparations for field visits commenced, with planning briefings for the Team members and the distribution of tasks, immediately upon arrival. The Team undertook preparations for field activities during site visits, including operational planning and arrangements to conduct interviews with casualties, as well as first responders, treating physicians, and eye witnesses; the collection, review, and analysis of documentation relevant to the alleged incidents, including clinical histories, admission records, and investigation reports of casualties and autopsy findings, if available, of victims; the collection of samples, including biomedical and post-mortem, as required, of alleged casualties/victims to this end; and the collection of environmental samples, and the review and analysis, if deemed feasible and safe to do so, of munitions or remnants of munitions reportedly used to carry out the attacks.

28. The Team also continued to deepen its contacts with relevant components of the United Nations relevant to the preparation of field visits. With these elements in the lead, contacts were established and maintained with representatives of the opposition for preparations to carry out site visits; and contacts were maintained with representatives of the Government of the Syrian Arab Republic, with a view to preparing for site visits.

29. In close consultation with the UNDSS, the FFM reviewed and identified options for the selection of suitable locations for site visits and commenced planning and preparation of documentation required under the UNSMS.

Selection of locations for site visits

30. On 19 May, it was decided that the first on-site field mission would be conducted on 22 May to Harasta, which was one of the first locations to have been allegedly attacked with chlorine and was also located close to Damascus. Since the arrival of the FFM in early May, no further attacks had been reported. However, on that same day, allegations of a new attack on the town of Kafr Zeyta came to light. This was followed by another allegation on 21 May of an attack on the nearby town of Al-Lataminah. As its contacts with representatives of the opposition were already well under way, the FFM was in a position to establish contacts with two treating physicians in Kafr Zeyta and obtained their verbal medical reports relating to the treatment of individuals allegedly affected by exposure to chlorine. In addition, the Team was also able to review video footage covering the alleged attack, as well as showing items reported to be the remnants of the munitions used, as well as some that remained intact. On the same day, the FFM decided to change its plans and to

head to Kafr Zeyta instead of Harasta. This decision was welcomed by the opposition.

Notification to the Syrian Government and safety and security arrangements

31. On 19 and 20 May, the entire FFM Team, including OPCW and UN components, underwent two-day pre-mission Safe and Secure Approaches in Field Environments (SSAFE)/Security Awareness Induction Training SAIT), including modules on mine/UXO[1] awareness as well as training on communications during field activities.

32. On 22 May, the FFM submitted a note verbale to the Syrian Ministry of Foreign Affairs informing the Government of the likely date of the mission to Kafr Zeyta, then planned for Sunday, 25 May, and requesting the initiation of arrangements, including a cease fire, to ensure the safe movement and travel of the team to Homs, where it would break its journey for the night, before proceeding the next day for the site visit.

33. The Head of the FFM met General Al-Sharif the next day to further discuss and finalise the necessary arrangements.

34. Contacts with representatives of the opposition continued and satisfactory understandings were reached regarding the concrete arrangements during the field mission. The Team established contact with two treating physicians through interlocutors, and they agreed to make arrangements in a local hospital for the Team would carry out its work. They also agreed to share their medical credentials, various clinical records of affected individuals, investigation reports, and blood samples collected immediately after the incident.

35. The local authorities and treating physicians also agreed to make arrangements to enable the Team to conduct interviews with individuals from the pre-identified target groups (victims, first responders, treating physicians, and witnesses) on site and, as applicable, to carry out medical sampling. To this end, the Team prepared specific interview packages for each group of individuals.

36. On 23 May, a conference call was held with all key players involved in the security arrangements from the side of the opposition, and their commitment to these arrangements was confirmed.

37. The Mission Security Clearance Request (MSCR) was finalised by the UNDSS and submitted through the OPCW Office of Confidentiality and Security to the Director-General, who signed it. The MSCR was also approved by the United Nations Under-Secretary-General in charge of the UNDSS.

38. Given the mission's rating as "Very High Risk Mission", key risks were identified and associated applicable risk-mitigating measures were adopted.

39. The arrangements leading to the site visit of 27 May included a number of follow-up meetings with the Syrian authorities, who continued to offer their full support while cautioning that reliable arrangements might not be possible in dealing with armed groups.

[1] UXO = unexploded ordnance.

40. On 24 May, two meetings were held with the hosts in the morning, covering the most feasible route to Kafr Zeyta.

41. The road to Homs was described as completely safe by the General. The discussion focused on the route to be taken from Homs to Kafr Zeyta. The Syrian Government's preferred route was identified.

42. In the afternoon, the General's Deputy met with the Team Leader and the Security Adviser and discussed further details about the identified route, especially the access road leading into Kafr Zeyta.

43. Various routes had been under discussion with the opposition. The selected route, including the access road, was agreed with two major groups operating in the area. They informed the team that they would also make arrangements with some other field commanders heading different armed factions in the area.

44. The date for the field mission was finally fixed for 27 May. The Concept of Operations for Kafr Zeyta was reviewed and finalised between the Head of Mission and the Team Leader and shared with the team focusing on convoy security, communication procedures, sequence of activities on the ground, and sub-team assignments. Since Kafr Zeyta had by then been subjected to a number of alleged attacks, there were several locations of interest, as well as a number of munition remnants and alleged devices claimed to be more or less intact, with cylinders inside tubular shaped encasings.

45. The route map that clearly identifies the access road was fully shared with both the Government of the Syrian Arab Republic and the opposition interlocutors.

46. In a letter dated 25 May, the National Authority of the Syrian Arab Republic informed the FFM that, on 19 May, an armed group had tested a "locally made rocket with a gas cylinder warhead", which had resulted in a toxic release. The letter also claimed that the Syrian Government had come across information on the existence of barrels containing chlorine gas in a certain house owned by an individual in the town of Kafr Zeyta, together with other unidentified canisters stored at another location. The Team was requested to inspect these locations when it arrived in Kafr Zeyta.

47. A day prior to the field visit, both the Government of the Syrian Arab Republic and the opposition confirmed in writing their commitment to observe a cease fire on 27 May 2014.

Incident of 27 May

48. The composition of the FFM convoy for the cross-line mission was six (6) armoured vehicles; four (4) of these were to cross into the designated mission area and the other two (2) were to remain at the last Syrian Government checkpoint with a Syrian Government ambulance. The mission arrived in Homs from Damascus on 26 May. On 27 May, it departed from the hotel in Homs at 7:10 and arrived at the last Syrian Government checkpoint at 9:20.

49. From this point, an escort arranged by the Syrian Government led the OPCW FFM convoy towards the perimeter of the town of Tayyibat-Al-Imam, where he stopped, signalling the way to Kafr Zeyta, and then left, taking another road. While travelling through the town, the team did not observe any unusual or suspicious circumstances. The convoy continued on the planned route towards the agreed point

of meeting with the opposition escort, which was located between the Tayyibat-Al-Imam and Al-Lataminah villages. Approximately 1,000 meters of the agreed road lay ahead. With a slight incline in the road, it appeared possible that the opposition contacts might not be visible. In order to overcome the visual disadvantage due to the terrain gradient and in order to establish a direct line of sight, the first vehicle in the convoy proceeded ahead, with the second vehicle waiting some distance behind and the rest of the convoy still further back. At 9:35, the leading vehicle was struck by an improvised explosive device, causing severe damage to the vehicle but no injuries to the occupants except for minor soft-tissue injuries to the left arm of the driver.

50. After the occupants were evacuated into the other vehicles, the convoy made an effort to return to safety. On re-entering the town, the first vehicle in this convoy was attacked with automatic gun fire. While this vehicle managed to get away, some distance ahead from the point of the shooting, the remaining two vehicles were intercepted by armed gunmen and members of the team detained for some time. Upon the intervention of the opposition group with which the arrangements for the visit had been made, all team members were released unharmed.

51. Given the circumstances and the loss of time, together with the approaching deadline for the end of the cease fire, the field mission was aborted and the team returned to Damascus via Homs.

Conclusions

52. The FFM has reviewed the information available to it, including that in the public domain relating to the several similar incidents. Some of this information seems to corroborate the testimonies provided by the treating physicians with whom the FFM was able to establish contact. The similarities in the witness accounts reviewed over the course of time became conspicuous. It is for this reason that, despite the high risk involved, the FFM decided to conduct a field visit to Kafr Zeyta — the town that seemed most affected by incidents of use of chlorine and that was most likely to yield evidence that was fresh from the most recent reported attacks. A field visit would have enabled the Team to collect for themselves clinical and environmental evidence and to authenticate information already available in the public domain, including information relevant to the munitions and the possible mode of deployment.

53. The attack on the Team and the resulting denial of access to the FFM prevents it from presenting definitive conclusions. It is nonetheless the considered view of the FFM that the available information cannot be dismissed as unconnected, random, or of a nature attributable to purely political motives. This information lends credence to the view that toxic chemicals, most likely pulmonary irritating agents such as chlorine, have been used in a systematic manner in a number of attacks.

54. The Director-General has taken the decision for the FFM to continue its work "by closely monitoring the situation and using all possible means to gather information and data in order to establish the facts surrounding allegations of the use of chlorine in Syria". The Mission is now planning the next steps. On a preliminary basis, the FFM will continue its interactions with all interested parties in order to advance the objectives of a logical and systematic inquiry.

55. While field visits are not envisaged for the immediate future, these remain an option.

Enclosure III

Note by the Technical Secretariat of the Organization for the Prohibition of Chemical Weapons

Second report of the OPCW Fact-Finding Mission in Syria

Key findings

1. On 29 April 2014, the Director-General announced the creation of an OPCW Fact-Finding Mission in Syria. The Mission was mandated to establish the facts surrounding allegations of the use of toxic chemicals, reportedly chlorine, for hostile purposes in the Syrian Arab Republic.

2. The Fact-Finding Mission submitted its summary report covering the period from 3 to 31 May 2014 on 16 June 2014 (S/1191/2014, dated 16 June 2014) which was circulated to the States Parties.

3. The Second Report of the Fact-Finding Mission, including its key findings, is hereby circulated for the information of States Parties to the Chemical Weapons Convention.

4. The Director-General considers it expedient for the Fact-Finding Mission to continue its work, which will include transcribing the recorded evidence and data that it has obtained as well as continuing to look into other alleged incidents.

Annexes:

Annex 1: Cover Note by the Head of the OPCW Fact-Finding Mission in Syria

Annex 2: Second Report of the OPCW Fact-Finding Mission in Syria — Key Findings

Annex 1
Cover note by the Head of the OPCW Fact-Finding Mission in Syria

10 September 2014

Director-General,

In continuation of the Summary Report of the Fact-Finding Mission (FFM) in Syria, dated 16 June 2014, I submit herewith the second report on the work recently conducted by the FFM, including its key findings.

Malik Ellahi

Head of the FFM

Annex 2
Second report of the OPCW Fact-Finding Mission in Syria

Key findings

Introduction

1. On 16 June 2014, the OPCW Fact-Finding Mission (FFM) in Syria submitted to the Director-General the "Summary Report of the Work of the OPCW Fact-Finding Mission in Syria Covering the Period from 3 to 31 May 2014" (S/1191/2014, dated 16 June 2014). The Executive Council of the OPCW (hereinafter "the Council"), at its Forty-Second Meeting, and then at its Seventy-Sixth Session, emphasised its unequivocal support for the Director-General's decision "to continue the Mission, while stressing that the safety and security of Mission personnel remains the top priority. The Council called upon all parties in the Syrian Arab Republic to extend their full cooperation to the Mission and to ensure that it completes its work safely and effectively. The Council also encouraged all States Parties that are in a position to do so to work with the relevant parties in the Syrian Arab Republic in this respect."

2. Based on the Director-General's decision and the guidance provided by the Council, the FFM commenced preparations to conduct the second phase of its work. A key objective for the FFM was to carry out some of the activities that it had been unable to perform because of the attack on its convoy while heading for Kafr Zita on 27 May 2014. Such activities would have included on-site collection of samples and other evidence and, more significantly, the acquisition of the testimony of victims, treating physicians, first responders, and eye-witnesses. On return to the Headquarters, the FFM began planning to interview witnesses at a safe location outside of Syria as an alternative to visiting the sites in question. A plan was finalised to bring witnesses from the villages of Talmenes, Al Tamanah, and Kafr Zita to an identified safe location. The FFM arrived at the location on 18 August 2014. The first group of witnesses from Talmenes arrived on 25 August 2014 and the interviews started the same day. Subsequently, two additional groups of witnesses from Al Tamanah and Kafr Zita were interviewed, with the process concluding on 4 September 2014.

3. As part of the arrangements for the interviews, the FFM agreed that, except for the names of the villages in question, the names of individuals and any other such information that the witnesses deemed might cause risks to their safety, would not be mentioned in this report or otherwise divulged.

4. This report presents the key findings from the interviews and the considerable amount of documentation and other relevant information collected by the FFM. For background purposes, reference may be made to the earlier report of the FFM (S/1191/2014).

a. Organisation of work

5. The FFM organised its work in two teams, each led by an OPCW medical doctor and supported by another interviewer/note-taker and an interpreter. The Head of the FFM acted as the interview coordinator. All witnesses agreed to participate in a recorded interview by signing a consent form. This includes both an audio and video record. Four individuals consented to an audio record only. After each

interview was recorded (audio and video), the consent form, the recordings, and any other information provided by the witness, such as medical documents, sketches, photographs, or videos, were collated, sealed, and registered as confidential material.

6. Each individual submitted their identification documents issued by the Government of the Syrian Arab Republic, indicating their date and place of birth, place of residence, and other particulars. The treating physicians also submitted copies of their medical credentials.

7. In organising the interviews, the FFM worked closely with the organisation "Violations Documentation Center in Syria".

8. Independently of the individuals from the three villages who were interviewed, the FFM interviewed and received information from members of the "CBRN[2] Task Force", who had performed a systematic collection of data in the field following reported attacks in Talmenes and Kafr Zita.

a. Events and conditions in the three villages as described to the FFM

i. Salient description of events relating to each of the three villages

9. **Talmenes**, a village located in the province of Idlib, has a population of some 20,000 inhabitants. The village has one small field medical clinic, established about 18 months ago, with very limited resources and facilities offering only basic medical aid. Fourteen individuals from Talmenes were interviewed between 25 and 29 August 2014. This group included two treating physicians, two nurses/medical responders, and 10 victims/witnesses. Witnesses recalled two attacks with barrel bombs containing chlorine dropped from helicopters. These attacks occurred on 21 and 24 April 2014, respectively. The first attack, as related to the FFM, was at around 11:00, with two devices striking close to each other and resulting in nearly 200 casualties. One woman, a teenage girl, and a seven-year-old boy died as a result of exposure to lethal doses.

10. **Al Tamanah** is a nearby village that has two field medical clinics with minimal resources in terms of medicines and medical equipment. They have the capability to provide only the most basic medical aid to limited number of individuals. The FFM interviewed and collected testimonies from 14 individuals, including two treating physicians, two nurses/medical responders, and 10 victims/witnesses. These interviews were held from 29 August 2014 to 2 September 2014. According to the witnesses, this village has been attacked five times with barrel bombs containing chlorine dropped from helicopters. The dates recounted are 12, 18, and 30 April 2014, and 22 and 25 May 2014. All attacks, except the one of 22 May 2014, occurred at night. These attacks resulted in more than 150 casualties, and eight of the most severely affected, mostly women and children, died from exposure to lethal doses of the toxic chemical.

11. **Kafr Zita** is a small town located some 30 km from the city of Hama in northern Syria. The town had two hospitals, one of which was destroyed during an air raid. Witnesses reported some 17 "chlorine" attacks, with the last one occurring as late as 28 August 2014. These attacks led to dozens of casualties. The witnesses could recall at least two deaths, and a high number of casualties. One of these

[2] CBRN = chemical, biological, radiological, and nuclear.

attacks occurred in the vicinity of the town hospital and medical personnel themselves suffered exposure. The FFM interviewed nine individuals from this town, including two treating physicians, two nurses/first responders, and five witnesses/victims. These individuals were interviewed from 2 to 5 September 2014. Given the frequency of the attacks on Kafr Zita, these witnesses seemed to suffer from stress and could not exactly recall the numerous dates and the times of the attacks. The medical records handed over to the team by the treating physicians, however, provide the dates on which casualties were treated.

a. Key Findings in Narrative

12. The 37 recorded testimonies from witnesses belonging to the three villages, together with documentation, including medical records collected by the FFM, present a composite account of the conditions experienced in the three villages, especially in the aftermath of the attacks. The frequency of the reported attacks, the first-hand accounts provided by a relatively large number of witnesses, and the significant amount of supporting data and documentation create a distinctly discernable and revealing narrative.

13. When the attacks began, people responded in the manner to which they had become accustomed. These villages are under constant attack from high-explosive ordnance. Such attacks would typically occur following the sound of helicopters flying at high altitude. A rudimentary early-warning mechanism would warn people to take shelter. Some spotters would position themselves so as to keep an eye on the movements of the aircraft. Given the high altitude, the features of the helicopters would be barely visible, though some witnesses described the helicopters as having a "wing like" extension on both sides, from which the ordnance — described by them as barrel bombs — was released. Once released, people expected the familiar strong thunderclap of high explosives and proportional destruction.

14. In describing the incidents involving the release of toxic chemicals, witnesses invariably connected the devices to helicopters flying overhead. When dropped, a piercing heavy, whistling sound — some comparing it to that of a fighter jet in a dive — would be heard before the barrel hit the ground. Witnesses also invariably reported the explosions as being muffled. As described, these explosions were more akin to high-impact crashes rather than to loud explosions. The descriptions of the locations impacted and of immediate environments suggest that the devices were designed either to rupture on impact or carry a small improvised explosive charge. Villagers have collected a grainy compound from an unexploded device that resembles synthetic chemical fertiliser. A bag full of this material was presented to the FFM.

15. The physical damage in the immediate environment of the points of impact, as described and as seen on video, is consistent with what would normally occur as a result of a heavy object impacting a built-up area with massive force: no fires were reported, and no obliteration of residential compounds. Common features included the partial collapsing of roofs — where these devices struck the houses directly — collapsed walls, and impact craters.

16. In courtyards, domesticated birds and animals died, and leaves on plants facing the point of impact withered and wilted "as autumn leaves". In one case, a child standing close to the impact site died later because of exposure to the toxic chemical, while showing none of the obvious physical trauma as that usually

inflicted by a conventional explosive device. In the houses that were exposed to the toxic chemical, discolouration of clothes and furniture was reported.

17. These descriptions are consistent with many publicly available accounts as well as with the video footage acquired by the FFM. Some of the locations described by the witnesses tally with those previously reported to have been attacked. Videos seen and retained by the FFM include a demonstration of geographic coordinates confirming the points of impact in Talmenes and Kafz Zita.

18. Other reports that provide further insight into the conditions include observations by ordinary citizens that low-lying areas created greater exposure than higher elevations. In one village, citizens had identified and used a low-lying area in the north-east of the village as a refuge against shrapnel and flying debris during conventional attacks. On 21 April 2014, when Talmenes was first struck by toxic chemicals, the wind was blowing towards the east. Unaware of the downwind hazard of toxic chemicals, unsuspecting villagers attempted to escape to their usual shelter. The gas cloud also headed in the same direction and descended into the depression, thus leading to the large number of casualties. Relating a similar observation, a volunteer first responder with no training and only basic education said that, driving through the village, the lower lying parts carried a stronger odour of the substance than higher elevations.

19. The FFM repeatedly encountered accounts of people attempting to flee the affected areas and taking precautions instinctively or to best of their knowledge and resources. One family, whose house was struck, reportedly took shelter in the bathroom, standing under a shower; others reported covering their mouths and faces with wet towels, and still others unsuccessfully tried to protect themselves using paper masks that are effective only against dust. A sleeping toddler escaped serious exposure because her face was covered with a blanket to protect her against insects. Other family members suffered much greater exposure.

20. One account described to the FFM concerned an attack that occurred "one day before the end of Ramadan" this year, and just a few minutes before the time to break the daily fast. The affected individuals in this case had taken refuge in a basement shelter, expecting a conventional attack from a helicopter, when a barrel bomb with chlorine fell some 40 to 50 m away from the shelter. This basement shelter, approximately 10 x 10 m in size, has two entrances/exits; one opening to the north and another opening to the south-east. The latter is connected to a street at a higher elevation compared to the northern exit. The shelter was packed with people from the neighbourhood. They were informed about the chlorine attack and asked to escape to higher ground. By this time, the victims also began to smell the odour of chlorine. Some people took the south-east exit and were less exposed, whereas those who took the north exit ran directly into the chlorine cloud heading in a north-south direction. These individuals developed more severe symptoms, with some immediately falling unconscious and regaining consciousness later in the hospital.

21. People typically described a dense, honey wax-to-yellow hue towards the centre of the cloud rising from the impact of the devices. The cloud would rise to a height of approximately 60 to 70 m and then settle, moving along the ground in the direction of the wind. All described the toxic chemical smell as being very strong, irritating, and of "chlorine". The intensity of the odour would begin to reduce in the vicinity of impact sites some 30 to 45 minutes later.

22. Casualties were evacuated from the vicinity of the impact sites by ambulance; some were makeshift, with volunteers using personal cars and motorbikes, and some people were evacuated on foot. Another striking feature in the testimonies was that local field hospitals established to treat the war wounded were severely handicapped in treating the high number of casualties, and there was therefore a frequent transfer of patients to the neighbouring villages. The doctors who were interviewed reported treating patients from other locations. This was a recurring theme during the interviews. Many severely affected individuals were reported to have been evacuated for treatment outside of Syria. The hospital admission and discharge records from these hospitals have not yet been accessed by the FFM. The FFM was made aware that autopsies on at least two victims were also performed outside Syria, and the findings from the pathology report are also of interest to the FFM as further confirmatory information.

23. In the earlier attacks, first responders rushing to the scene to help reported getting exposed themselves, some seriously, with many requiring medical attention. As the attacks became more frequent, people adapted. First responders started using wet cloths or trauma bandages as masks. With the very first attacks, medical professionals expecting the usual war victims reported being taken aback by the fact that the mere presence of victims in the hospitals made the entire premises smell strongly of a substance similar to what was variously described as bleach, cleaning material, or chlorine. The medical personnel at these clinics did not have personal protective equipment for their personal safety, and had to manage with surgical masks and latex gloves. Most of them also later suffered from symptoms resulting from cross-contamination. Physical injuries, such as those caused by conventional ordnance, were nearly always absent among those reporting to the hospitals for medical treatment.

24. Those reporting casualties to the clinics frequently decontaminated themselves by washing their face and exposed parts of body with soap and water. In one instance, people even used the available carbonated drinks, believing these to be effective.

a. Clinical effects of exposure as described to the FFM

25. The typical presenting symptoms of those who were exposed to the toxic chemical included a burning sensation in the eyes, redness and itching in the eyes, excessive tearing, blurred vision, a burning sensation on the face and exposed skin, burning in the throat, coughing, difficulty breathing, shortness of breath, a feeling of suffocation, excessive nasal discharge, excessive watering in the mouth, nausea, vomiting, abdominal pain, diarrhoea, headache, generalised weakness, drowsiness, disorientation, a feeling of panic, and loss of consciousness.

26. The spectrum of clinical signs as observed by medical personnel included redness of the eyes, excessive lacrimation, rhinorrhoea, coughing, tachypnoea, dyspnoea, orthopnea, cyanosis, increased tracheal secretions, which were frothy and pink in severe cases, hypoxemia, with pulse oximetry showing an SpO2 of less than 60% in severe cases, agitation, and altered levels of consciousness. In the most severe cases, patients had diffuse crepitations on auscultation and advanced respiratory distress. Available X-rays of those most severely affected show pulmonary oedema.

27. The medical team members of the FFM clinically examined some of those who were exposed but did not detect any abnormalities, though these individuals complained of increased sensitivity to strong odours, generalised weakness, occasional bouts of coughing, reduced stamina, and dyspnoea on exertion.

28. The treatment provided to those affected after initial exposure included oxygen inhalation, nebulisation with salbutamol, intravenous delivery of the steroids hydrocortisone or dexamethasone, intravenous fluids, and airway suction to remove secretions. Most of the less exposed casualties responded well to the treatment provided, with people being discharged from clinics within two to three hours. The most severely affected needed to be intubated and required mechanical ventilation. Since the local clinics are without ventilators, such casualties were referred to other hospitals outside of Syria, with a number of them not surviving the journey.

a. Conclusions

29. Thirty-seven testimonies of primary witnesses, representing not only the treating medical professionals but a cross-section of society, as well as documentation including medical reports and other relevant information corroborating the circumstances, incidents, responses, and actions, provide a consistent and credible narrative. This constitutes a compelling confirmation that a toxic chemical was used as a weapon, systematically and repeatedly, in the villages of Talmanes, Al Tamanah, and Kafr Zeta in northern Syria. The descriptions, physical properties, behaviour of the gas, and signs and symptoms resulting from exposure, as well as the response of the patients to the treatment, leads the FFM to conclude, with a high degree of confidence, that chlorine, either pure or in mixture, is the toxic chemical in question.

30. Following the establishment of the FFM in late April, there was a marked reduction in allegations, especially in the months of May, June and July. However, during the month of August there was a spate of new allegations, with accounts of the incidents bearing strong resemblance to those that are now confirmed as having been chlorine attacks.

Enclosure IV

Note by the Technical Secretariat of the Organization for the Prohibition of Chemical Weapons

Third report of the OPCW Fact-Finding Mission in Syria

1. On 29 April 2014, the Director-General announced the creation of an OPCW Fact-Finding Mission in Syria (hereinafter "the Mission"). The Mission was mandated to establish the facts surrounding allegations of the use of toxic chemicals, reportedly chlorine, for hostile purposes in the Syrian Arab Republic.

2. The Mission submitted its summary report covering the period from 3 to 31 May 2014 on 16 June 2014 (S/1191/2014, dated 16 June 2014) and its second report on 10 September 2014 (S/1212/2014, dated 10 September 2014). Both reports were circulated to the States Parties.

3. The third report of the Mission is hereby circulated to the States Parties. This report provides a more detailed account of the work undertaken by the Mission in the second phase and the process leading to the findings presented in its second report regarding the use of chlorine for hostile purposes. The Mission has presented its conclusions with a high degree of confidence that chlorine has been used as a weapon. The work of the Mission has remained consistent with its mandate, which did not include the question of attributing responsibility for the alleged use. Based on the available information, the Mission has completed its work with regard to the allegations of the use of chlorine in the villages of Talmenes, Al Tamanah, and Kafr Zita.

4. The Director-General should also like to advise the States Parties that the Syrian Arab Republic, through a letter dated 15 December 2014, has informed him that some documents providing information on the allegations of use of chlorine in the Syrian Arab Republic would be delivered soon. Once these documents are received, they will be examined by the Mission and the outcome of the examination will be circulated to the States Parties.

Annexes:

Annex 1: Cover Note by the Head of the OPCW Fact-Finding Mission in Syria

Annex 2: Third Report of the OPCW Fact-Finding Mission in Syria

Annex 1
Cover note by the Head of the OPCW Fact-Finding Mission in Syria

17 December 2014

Director-General,

In continuation of the Second Report of the Fact-Finding Mission (FFM) in Syria, dated 10 September 2014, I submit herewith the third report of the FFM.

Malik Ellahi

Head of the FFM

Annex 2
Third report of the OPCW Fact-Finding Mission in Syria

1. INTRODUCTION

1.1 This report, while chronologically the third of the OPCW Fact-Finding Mission in Syria (hereinafter "the Mission"), is essentially an expansion of the second report issued in September 2014, presented in support of its key findings.

1.2 The first report issued in June 2014 detailed, inter alia, the genesis of the Mission, its objectives and purposes, and its mandate. That report also covered the extensive discussions with the Government of the Syrian Arab Republic in early May 2014, as well as the Government's views. Under the terms of reference agreed with the Syrian Arab Republic, for locations of interest to the Mission that were not under Government control, the Mission was to make its own arrangements for conducting on-site activities as part of its work. These anticipated activities included interviewing witnesses from the areas that were allegedly attacked with a toxic chemical believed to be chlorine. Subsequently, with access to any of the areas virtually ruled out as a result of the armed attack on the Mission convoy on 27 May 2014, the Mission, which despite the known challenges was asked to continue its work by general consent of the States Parties, followed up its work by bringing witnesses to a safe location outside the Syrian Arab Republic.

1.3 This report details witness examinations and the accounts of incidents emerging therefrom. It also provides samples of the kind of supporting documents and data that were acquired. It highlights the serious constraints of conducting an inquiry of this nature in a conflict zone.

1.4 Despite these issues, the key findings presented in the second report follow the application of widely used and established methods of inquiry, which this third report will serve to highlight.

1.5 The witnesses from the three villages of Talmenes, Al Tamanah and Kafr Zita include casualties,[3] family members of victims,[4] first responders, nurses, and treating physicians.

1.6 In establishing that chlorine has been used as a weapon, the Mission was able to cross-check information available from publicly accessible sources with information that it acquired independently, including video recordings; these collections of information and data are in harmony with the descriptions and characterisations provided by the interviewed witnesses.

1.7 The signs and symptoms described and documented are typical of the chemical effects of exposure to pulmonary irritants. The severity of symptoms varied and depended on a number of factors, such as the concentration of the toxic gas, the duration of exposure, the age of the victim, and the time medical treatment was received.

1.8 The casualties, of which there was a large number, turned to the nearest medical points/field hospitals in their village or neighbourhood. Different means of

[3] Casualty = a person who has survived an alleged exposure to a toxic chemical and may display clinical features consistent with the physiological effects of toxic chemicals.

[4] Victim = a person who may have been exposed to a lethal dose of toxic chemical.

transportation were used and other hospitals became involved, as the immediate medical points did not have the capacity to treat the number of patients showing up. The field hospitals in the conflict area are poorly equipped and staffed and are unable to provide the advanced treatment required by the number of persons severely exposed. Such persons were often sent to other hospitals, including out-of-country facilities. The lack of protection, severe exposure, absence of proper treatment, and prolonged medical evacuation to higher medical echelons led to a number of fatalities. Of the 350 to 500 casualties reported by the witnesses, 13 died, either at the place of the attack or shortly thereafter, or on the way to the next hospital or a few days later, despite receiving advanced medical treatment. These victims presented acute lung injuries induced by toxic gases followed by pulmonary oedema.

1.9 As the report shows, witnesses also described the features of the munitions, and the unusual and striking characteristics of the damage, including environmental consequences and effects on livestock, vegetation, and household goods and materials. They also described the gas, its dissipation in the open air, and its lingering inside houses for days on end.

1.10 Insofar as these three villages are concerned, the Mission believes that its work has now been concluded. However, the Mission could consider supplementary information which may be obtained from other sources. Furthermore, as requested in May 2014 and as subsequently communicated by the Director-General, the Mission remains open to reflect any substantive information that the Syrian Arab Republic will provide.

2. CHALLENGES AND CONSTRAINTS

2.1 The Mission faced a number of challenges in its endeavour to collect facts relating to the allegations of use of toxic chemicals in the conflict in the Syrian Arab Republic. Ideally, the Mission should have been able to physically visit the locations of the alleged incidents. Such visits would have provided the opportunity to:

(a) assess the layout of the places, for example by studying the topography of the villages;

(b) physically evaluate the damage caused by the munitions containing toxic chemicals, for example the size of impact craters, and damage to surrounding structures;

(c) study the remnants of munitions that exploded as well as those that reportedly remained intact, and to collect samples;

(d) collect environmental samples from impact sites for analysis;

(e) physically observe the effects of chemicals on vegetation and collect samples where relevant;

(f) visit the hospitals and make assessments of the available facilities;

(g) peruse the hospital records including patient registers, treatment records, radiographs, etc.;

(h) interview medical staff;

(i) collect testimonies from all persons who were affected by toxic chemicals and underwent treatment;

(j) carry out clinical examinations of those affected;

(k) collect biomedical samples, as necessary; and

(l) document by video all of these activities and observations.

2.2 Chlorine, by nature, dissipates from environments rapidly, thus making its detection difficult. At room temperature, chlorine is a yellow-green gas, more than twice as heavy as air, and moderately water-soluble. It has a detectable odour even at low concentrations, and is a potent eye, skin, and respiratory irritant. Chlorine reacts promptly with water in the mucous membranes and airways to form hydrochloric and hypochlorous acids, leading to acute inflammation of the conjunctiva, nasal mucosa, pharynx, larynx, trachea, and bronchi. Acute exposures can result in symptoms of acute airway obstruction, including wheezing, cough, tightness in the chest, and dyspnoea. Clinical signs, including hypoxemia, wheezes, rales, and abnormal chest radiographs, may be present. More severely affected individuals may suffer acute lung injury and acute respiratory distress syndrome. Severe exposure could lead to death. Chronic sequelae may include increased airway reactivity, which tends to diminish over time. There are no established biomarkers for chlorine.

2.3 The activities that the Mission had planned, as mentioned earlier, might have compensated for the inherent limitations of any inquiry into the use of chlorine as a weapon. It was intended to collect multiple environmental samples from the soil from the point of impact, as well as from areas downwind and upwind of that point. The expectation was that chlorine would deposit on soil and be transported into the soil column, where it is converted to a variety of products, including chloride ion. Chloride is a natural component in soil, however, detection of high levels of chloride in the upper layers of the soil in areas near or downwind of the point of dissemination could be indicative of chlorine release. Samples were therefore planned to be collected from multiple locations both upwind and downwind of the alleged release point. Ideally, samples would have been collected in such a way as to maintain the soil column structure and sampled along the length of the soil column. Chloride concentrations in the soil column can be determined in a laboratory by means of ion chromatography or ion selective electrode. It was expected that values of chlorides would be highest at the impact point, followed by places downwind and, to a lesser extent, places upwind of the impact point.

2.4 Similarly, the Mission also planned to physically examine the munitions containing toxic chemicals and to take swipe samples from the bodies or remnants of these munitions, and to sample other contents such as explosive materials, if available.

2.5 Though there are no established biomarkers in the case of exposure to chlorine, the Mission initially researched the possibility of detecting and studying exposure concentration-dependent increases in 3-chlorotyrosine and 3,5 dichlorotyrosine among those who were exposed. This method has been studied by research scientists in rats, using biopsies from nasal tissue. However, this line of inquiry would not have been feasible, as it would have been near impossible to collect invasive samples in field conditions. At the same time, exposure to other chlorinated compounds, as well

as inflammatory processes in the body, can also produce 3-chlorotyrosine and 3,5 dichlorotyrosine, making the test non-specific.

2.6 However, the Mission failed to gain physical access to the location of an alleged attack when its convoy came under armed attack in May 2014. Under these circumstances, the focus of the inquiry was shifted to collecting the testimonies of witnesses, victims, and those providing medical care, together with collecting and examining relevant documentary evidence. Arrangements were made to ensure that the individuals who were interviewed included treating physicians, first responders, nurses, affected individuals, and witnesses to the events. Although the interviews were conducted at a safe location, the attendant risks of movements from a conflict zone, especially for volunteers willing to participate in this task, imposed limitations of time and space that had to be overcome as best as the circumstances permitted. For understandable reasons, it was difficult to get more representation from women from the affected locations. Physical evidence relating to environmental samples brought by one of the interviewees was not accepted by the Mission, owing to the lack of a chain of custody. There were also ethical issues associated with interviewing some young individuals who were not accompanied by their parents; these were therefore excluded from the inquiry. However, the statement of one minor boy was recorded, as he insisted on being heard. The documentation of casualties at hospitals was not extensive, owing to high patient turnover and limited medical staff, who were focused on treatment rather than documentation. In compiling its reports, the Mission made allowances for the fact that since multiple similar events were claimed, some of the interviewees remembered partial details or could not exactly recall which specific incident a detail related to.

2.7 The Mission also could not rely on clinical examinations, as the medical symptoms caused in survivors exposed to the toxic substance had been resolved either through treatment or spontaneously over the intervening period. As the Syrian Arab Republic is in a state of armed conflict, record keeping, including the recording of deaths, is also affected. The hospitals at all locations in question are sparsely furnished with medical equipment, thus the treating physicians were unable to take blood tests, perform radiographs, etc. In addition, the serious cases, which would have yielded the most findings, were transferred to higher echelons of medical care, and it was not possible to interview medical staff from these hospitals. The videos of events or of post-event situations that were provided by the interviewees were taken with mobile phone cameras, among others; a number of these are hurried and do not necessarily focus on areas of interest to the Mission.

2.8 Despite these limitations and challenges, the Mission was able to collect sufficient critical information and data in support of the conclusions and key findings presented in its Second Report.

3. METHODOLOGY/ORGANISATION OF WORK

3.1 The Mission's preparations included the identification of credible information available in open sources and the cross-checking of this directly against information that it acquired in the course of its work, the identification of cases that would provide maximum information, and the identification of individuals who were directly involved in incidents in some capacity, including casualties and treating physicians. As it was no longer feasible to conduct on-site work as a result of the

security incident in May 2014, a suitable location outside the Syrian Arab Republic was identified, and arrangements were set in motion to conduct witness interviews and collect data there. Contacts established during the work carried out in the first phase of the Mission, during which the team remained in Damascus for nearly a month, were utilised to facilitate this second phase of work. The arrangements that had been made for the aborted site visit to Kafr Zita were facilitated by these same sources, who were also instrumental in securing the release of the members of the team who were detained near Kafr Zita following the armed attack on the Mission's convoy.

3.2 The advance party, comprising the OPCW Team Leader and the second medical specialist, departed from OPCW Headquarters on 17 August 2014 and reached the site planned for conducting interviews on 18 August 2014. The advance party members carried with them the required equipment and supplies. They also established a safe location that would provide anonymity to all participants from both the OPCW and the Syrian Arab Republic. Arrangements were also made to ensure the physical safety of team members and interviewees. The advance party was joined by two externally hired interpreters on 19 August 2014.

3.3 The main body of the team, led by the Head of the Mission, the political affairs officer, and the OPCW interpreter, reached the planned site on 20 August 2014. The team then set up four collocated offices where interviews were to be conducted; these included two rooms for interviews that would run concurrently. All offices were sealed with OPCW tags, and arrangements were made to guard these offices at all times throughout the duration of the Mission. These security arrangements, besides providing safety and anonymity to all persons, were also required to ensure the safe custody of the data that was being gathered by the Mission.

3.4 The rear party of the Mission consisted of the OPCW chemical weapons munitions specialist, who carried with him additional equipment and material and joined the team on 23 August 2014.

3.5 The first interviewee provided his testimony and data to the Mission on 22 August 2014. The first group of interviewees from Talmenes reached the site on 25 August 2014. The Mission started with the interviews of two treating physicians on the same day, followed by interviews of other individuals from the group. A total of 14 individuals from the village of Talmenes were interviewed up until 29 August 2014.

3.6 The second group of interviewees from the village of Al Tamanah was available to the Mission on 29 August 2014, and interviews were held from 29 August to 2 September 2014. A total of 14 individuals from this village were interviewed.

3.7 The third and final group of interviewees, from Kafr Zita, was available to the Mission as from 2 September 2014, and the collection of their testimonies as well as data and documents concluded on 5 September 2014. Of the members of this group, nine interviews were held. Two members of this group were minors and had come unaccompanied by a parent or guardian and were therefore not interviewed. A few individuals from Kafr Zita who had been pre-identified for interviews were unable to join the group owing to unfavourable conditions.

3.8 For the interviews, the Mission was divided into two groups that conducted concurrent interviews in two separate rooms. At the end of each day, the Mission as a whole held a wash-up session and shared its findings. This was followed by the registration, sealing, and securing of all data and documents acquired that day.

3.9 At the beginning of the interviews, each interviewee was given an explanation of the process with interpretation in Arabic. Once the process was agreed, the recording devices were switched on. Consent for the interviews was prepared using the personal details of individuals and their identification papers, which were checked and cross-checked with information available to the Mission. This was followed by the signing of consent forms, of which copies were handed over to the interviewees. Example copies of such identification papers and signed consent forms are provided in Appendices 1 and 2, respectively. All interviewees were assured that they would remain anonymous.

3.10 In the next step of the interview process, the group leader would introduce the members of team to the interviewee. This was followed by the introduction of the interviewee and his or her statement. Questions were put to the interviewees based on the statements made by them, with a view to obtaining a full account of what they witnessed and experienced. The testimonies and evidence thus gathered from each individual was separately packed and sealed with OPCW seals and tags. The list of materials that were gathered from interviewees is provided in Table A of this report (see Attachment). All of the equipment that was used during these interviews was officially issued from the OPCW Equipment Store; no unauthorised equipment was used at any stage. All materials were handled in accordance with the OPCW Manual of Confidentiality Procedure and classified as "**OPCW HIGHLY PROTECTED**". Once the report is published, all information and documents generated during the Mission will be sealed and stored at OPCW Headquarters.

4. LIST OF MATERIALS GATHERED

4.1 The Mission gathered all materials during the interviewing process. All materials are listed and quantified in Table A, which shows the date of origin, the date they were made available to Mission, the originator, and the title. The materials include consent forms, identification documents such as ID cards, passports, and birth certificates issued by the Government of the Syrian Arab Republic, diagrams, hospital treatment records and investigation reports, certificates of qualification of treating physicians and nurses, testimonies in audio and/or video format, videos of incidents, photographs from incidents, documents detailing incidents, and marked maps. Examples of such materials are attached in various appendices to this report.

4.2 Similarly, the materials produced by the members of the Mission are listed and quantified in Table B (see Attachment). These materials comprise the OPCW inspection notebooks that were used by the team members during the interview process. An example from a page of one such notebook is provided in Appendix 3.

5. INCIDENT DESCRIPTIONS

5.1 The Mission interviewed individuals from three locations where chlorine was allegedly used as a weapon. These locations are the villages of Talmenes, Al Tamanah, and Kafr Zita. The relative location of these places is shown in the map provided in Appendix 4. The incident descriptions that follow are based on witness

statements and interviews and refer, as appropriate, to other relevant information and documents.

Talmenes

5.2 Talmenes is a village in the Idlib Governorate of the Syrian Arab Republic. The population of the village is approximately 20,000 and is made up of both local residents and internally displaced persons (IDPs). The village is not under the control of the Syrian Arab Republic and is reportedly on the front line with the governmental controlled Wadi al-Deif, located some 2 km to the east of the village. Witnesses reported frequent airborne, artillery, and mortar attacks. A large number of families including IDPs do not live in their own houses in the east of the village, but have instead moved into tents set up on the western side of the village.

5.3 Between 25 and 29 August 2014, the Mission interviewed and collected the testimonies of 14 individuals from Talmenes. The testimony of one minor was also collected in the presence of her parent, who gave permission and was present in the interview room at the time. The group comprised treating physicians, nurses, first responders, casualties, and witnesses, including family members of victims. The details of these interviewees are given in Table 1 below.

TABLE 1: AGE AND GENDER DISTRIBUTION OF INTERVIEWEES FROM THE VILLAGE OF TALMENES

No.	Interviewee	Age	Gender
1.	Witness	26	Male
2.	Treating physician	34	Male
3.	Treating physician	32	Male
4.	Witness	45	Male
5.	Casualty	37	Female
6.	Casualty	16	Female
7.	Casualty/witness	19	Male
8.	Casualty	21	Female
9.	Casualty/witness	44	Male
10.	Nurse	25	Male
11.	Nurse/first responder	26	Male
12.	Witness	45	Male
13.	Witness	38	Male
14.	Casualty	12	Female

5.4 The village of Talmenes has one field hospital, which is in one of the buildings in the village and is intended specifically for the medical needs of this village, including the treatment of traumatic war injuries. The hospital has a staff of seven doctors specialised in the fields of general surgery, internal medicine, and paediatrics, as well as 20 other staff including nurses, drivers, and cleaners. The hospital staff members do not have formal training in the management of injuries resulting from chemical incidents, and the treatment provided at this hospital is symptomatic. The doctors at this hospital work at similar field hospitals in neighbouring villages on different days of the week. The Talmenes hospital reportedly once came under direct conventional fire, resulting in the deaths of two patients. The structure of the hospital has been augmented continuously since its

establishment. The resources available at the hospital are limited, and essentially only first aid is provided locally before patients are transferred to higher medical echelons for definitive treatment. All individuals who present to this field hospital for routine ailments and war injuries are registered, and all medical records are maintained.

5.5 Talmenes field hospital has around 12 patient beds, a few oxygen cylinders, one vintage radiography machine that rarely functions, and one functional operation theatre. However, the hospital lacks any laboratory or intensive care unit. Patients are evacuated to similar field hospitals in the neighbouring villages of Jarjenaz, Al Tamanah, and Kafr Zita whenever the patient load exceeds the capacity of the hospital, as was the case during a toxic chemical attack on 21 August 2014. Patients are transferred to higher echelons of medical care to hospitals in Saraqueb (approximately 50 km away) and Bab Al-Hawa (approximately 100 km away). These hospitals have some intensive care capabilities and are relatively better resourced than the field hospitals. Those requiring further medical management are sent to hospitals outside the Syrian Arab Republic. The Talmenes field hospital has only one ambulance with the capacity to transport two patients. The available ambulance has only an oxygen cylinder, a suction apparatus, and some emergency drugs to provide medical support during patient transfer. Whenever additional transport means are required to transfer patients, these are either provided by the field hospitals in neighbouring villages or by volunteers from the village, who transport patients in their personal cars or vans.

5.6 Talmenes village was attacked with toxic chemicals on two separate occasions, first on 21 April 2014 and again on 24 April 2014. The individuals who were interviewed described the attack of 21 April 2014 to the Mission.

5.7 All interviewees claimed either seeing or hearing a helicopter overhead at the time of the incident. The interviewees explained that they were familiar with two model types of helicopters. These fly at high altitudes, as explained by interviewees, in order to stay out of the range of ground-based weapons. The helicopters that are reportedly used in attacks carry munitions on external platforms attached to the helicopters, which have been described as "wings" by the interviewees.

5.8 Rudimentary early-warning methods include the use of hand-held radios and announcements from public address systems (loudspeakers) installed on the minaret of the village mosque. There is currently no mobile telephone coverage in this village.

5.9 Once warned, the villagers anticipating a conventional attack would typically escape to an olive grove to the east of the village. As it is located in a natural depression, this place is chosen to avoid injuries from flying or falling debris.

5.10 As reported, on 21 April 2014, at around 10:30 to 10:45, two "barrel bombs" were dropped on the village in the neighbourhood around the "big" mosque. The bombs struck two houses at a distance of some 100 m from each other. The first bomb fell on the kitchen roof of one house, destroying the kitchen, the adjacent toilet, and part of the wall of one room. The second bomb fell in the open courtyard of another house. Example sketches and a photograph of the impact points of the munitions are given in Appendices 8 and 9.

5.11 The weather on 21 April 2014 was described as a typical spring day, sunny with clear skies and a temperature of around 25 to 30°C. As stated by an

interviewee, a mild breeze was blowing from west to east, which is the usual breeze pattern in this region.

5.12 The villagers showed familiarity with the explosive sound of conventional munitions, and compared it to the more muted sound produced by the strike of the munitions with toxic chemicals. The latter sound is typically described as a "thud" as compared to the "boom" accompanied with the "shaking of the ground" of conventional weapons. As this was the first such attack on this village, the inhabitants mistakenly assumed that the bomb failed to explode, until they saw the yellow cloud. The falling barrel bombs produce a whistling sound which, as explained by the interviewees, is caused by the air vents in the outermost encapsulation. One witness produced a sketch of such a munition, along with other designs with measurements (see Appendix 13). The barrel bombs, as described and sketched by the interviewees, did not have a standard design and appeared to be improvised constructions.

5.13 The dimensions of the bombs that reportedly struck Talmenes were approximately 2 x 1 m in size; the thickness of the outer encasing was around 2.5 cm. The approximate weight of the bomb, in the opinion of the interviewees, varied from 250 to 500 kg. One interviewee described and sketched the image of barrel bomb with stabilisation fin-like protrusions from the outer barrel. These stabilisation fins can be seen in the photograph of a barrel bomb in Appendix 12. As seen in open sources and confirmed by interviewees, the cylinders of the barrel bombs that were dropped on Talmenes on 21 April 2014 bore the markings "CL2", which were engraved on the body. These markings can be seen in the pictures of the cylinder contained in the barrel bomb (see Appendix 14). These pictures are screen-grabs from video footage provided by an interviewee.

5.14 The impact of these barrel bombs on the ground and the resulting explosion do not cause much damage to the surrounding buildings. These barrel bombs also do not generate splinters as is the case with conventional munitions. The Mission was provided with a video of the damaged houses where the bombs struck. The damage to the structure of the houses was seen only in places where the bombs had impacted directly, and there was no other physical damage to the other structures of the houses. Also, none of the affected individuals in the attack described had any signs of physical trauma on their bodies, but only suffered from the effects of a toxic chemical. The impact created a crater approximately 1.5 m deep and 2 m wide in the first house, and 1.4 m deep and 3 m wide in the second house. Photographs of such measurements from the first house are provided in Appendix 21.

5.15 The interviewees described the release of honey wax-to-yellow coloured gas from the dropped bomb. The gas cloud rose to a height of some 50 to 75 m, a few meters higher than the village mosque minaret, which stands at 40 m. The gas cloud that was generated was described as shaped like a tree. The cloud was very dense and people in the immediate vicinity of the impact were unable to see through the yellow "dust" that was suspended in the air. All of the interviewees described the smell of the released gas typically as pungent, irritating, and "of chlorine", or similar to household cleaning agents but much more intense. This cloud, along with the wind, then listed and moved towards the east, settling at a height of some 1 to 1.5 m above the ground, and covering one of the main streets of the village used by villagers as an escape route to the east. The cloud was spread over an area of some 200 m and people were affected as far as 1 to 1.5 km downwind. A screen-grab from

a video recording of such a cloud provided to the Mission by an interviewee is attached in Appendix 23.

5.16 People escaped towards the olive grove to the east of the village, a place where they routinely sought refuge whenever the village came under attack. They lacked knowledge about protection against chemical attacks so ended up trying to escape downwind, the direction of the hazard. The olive grove where people had gathered is also in a natural depression in the ground, into which the toxic chemical drifted. This led to approximately 200 people being affected.

5.17 The family living in the first house lost a seven-year-old boy, who died within a few hours of exposure, and a teenage girl, who died on the third day after exposure. The other family members were also severely exposed, and most of them had to be transferred for medical management outside the Syrian Arab Republic. These individuals required intense and prolonged treatment in the hospital, lasting up to three weeks in one case. Though the seven-year-old boy was some 15 m from the point of impact of the barrel bomb, there were no signs of physical trauma on his body, which had developed cyanosis and, as explained by interviewees, "turned blue in colour". The Mission was provided with a photograph of this dead child; the body lacked any signs of physical trauma. Similarly, other family members did not suffer from any physical trauma. In the second house, the family members who were home at the time of the attack and inhaled the toxic chemical suffered from severe medical effects and required medical care. The matriarch of this family died as a result of this exposure on 25 April 2014, in a hospital outside the Syrian Arab Republic. Photographs and/or autopsy records of the seven-year-old boy and the teenage girl from the first house, and of the elderly woman from the second house, were provided to the Mission. The Mission was also provided with autopsy-related records for these purposes.

5.18 Domestic animals including cows, goats, and sheep died at both houses, with the younger animals dying immediately and fully grown animals a few hours later. In addition, pigeons and chickens died in the incident. Screen-grabs from videos filmed by interviewees are attached in Appendix 25. The vegetation at these houses, including olive, pomegranate, fig, and apple trees, as well as grapevines and pepper plants, was also affected. The leaves of these plants dried, shrivelled and turned yellow shortly after exposure to the chemical. Fruit on the trees fell to the ground. Screen-grabs from videos of dropped fruit and wilted leaves provided by an interviewee are attached in Appendix 24. According to the testimony of one individual explaining the effects on plant leaves, "it appeared as if the plants have never been watered". The new leaves that sprouted later were normal. The cattle feed stored in the houses started to smell of chlorine and had to be thrown away. Similarly, household objects like mattresses also absorbed the chemical and started reeking of chlorine, and were left unusable. Metallic doorknobs took on a greenish-brown hue some time after the attack after exposure to the chemical vapours. One female interviewee also mentioned unusual rusting of the metal of a barrel, which developed very quickly over a matter of days (see photo in Appendix 26). Darker coloured clothes that were exposed also lost colour and became lighter in places exposed to chemical vapour.

5.19 Individuals who were in the vicinity of the attack or who were caught up in the gas cloud sought to protect themselves as best as they could, with most of them covering their mouths and noses with wet towels or such. The members of one

family protected themselves by standing under an overhead running shower until they were rescued. None of those who were exposed possessed or used a proper protective gas mask.

5.20 The individuals who were affected and suffering from the adverse effects of the toxic chemicals were rescued by neighbours and other village volunteers, who used personal cars and in some cases motorcycles. A few people at the periphery of the event and with minimal exposure escaped on foot. Affected individuals were initially taken to the field hospital in Talmenes. Because of the heavy patient load which exceeded the available resources at the local hospital, patients with mild symptoms were transferred to other similar field hospitals in the neighbouring villages of Jarjenaz, Al Tamanah, and Kafr Zita. Individuals exposed to higher concentrations of the chemical had severe clinical effects and needed intensive care, such as intubation and mechanical ventilation, and were transferred to hospitals in Saraqueb, Bab Al-Hawa, and outside the Syrian Arab Republic.

5.21 The Talmenes field hospital received approximately 200 patients on 21 April 2014. However, the hospital staff were able to register the names of 133 individuals, as they had referred the remaining patients directly to other hospitals in the vicinity without providing any medical treatment locally owing to a lack of resources. A copy of the patient registration book at the Talmenes hospital showing the name, age, gender, and other patient details was provided by treating physicians and is available to the Mission. This list will not be included in this report in order to maintain the confidentiality of identities. The age distribution of the 133 patients treated at the Talmenes field hospital is provided in Table 2 below.

TABLE 2: PATIENT DISTRIBUTION ACCORDING TO AGE GROUP

Age group	Total	Males	Females
0 to 5 years	21	8	13
6 to10 years	22	14	8
11 to 15 years	18	11	7
16 to 20 years	14	7	7
21 to 25 years	14	8	6
26 to 30 years	12	4	8
31 to 40 years	16	8	8
41 to 50 years	10	6	4
51 to 60 years	3	1	2
60 to 70 years	3	2	1
Total	**133**	**69**	**64**

5.22 Depending on the extent of the exposure to the toxic chemical, the individuals who were affected and reported to the Talmenes field hospital presented with the following symptoms: burning sensation in the eyes; redness of the eyes; itchy eyes; excessive tearing; blurred vision; a burning sensation on the face and exposed skin; a burning sensation in the throat; coughing; difficulty breathing; shortness of breath; a feeling of suffocation; excessive nasal discharge; watering in the mouth; nausea; vomiting; abdominal pain; diarrhoea; headache; generalised weakness; drowsiness; disorientation; feeling of panic; and loss of consciousness. The intensity of the symptoms experienced were more severe in persons exposed to higher concentrations of the toxic chemical, as well as in persons who initially delayed seeking medical help. The most commonly reported symptoms were coughing, difficulty breathing, a feeling of suffocation, burning sensations, excessive tearing, and excessive nasal discharge.

5.23 The decontamination of patients in a few cases involved the washing of the exposed area of skin, especially the face, with soap and water. This decontamination was not organised centrally at the hospital for everyone who sought medical care, owing to a lack of resources at the hospital. However, the Talmenes field hospital has now set up two separate tents to provide privacy for males and females needing to wash with soap and water.

5.24 The attending medical staff complained of the strong smell of chlorine emanating from the clothing of casualties. The only protective means available to hospital staff were surgical masks and latex gloves, which hardly offered any protection from the vapours. As a result, the staff also became cross-contaminated and suffered from coughing, a burning sensation in the eyes and throat, and excessive tearing. These symptoms were relieved by moving into the fresh air, and no medical intervention was required.

5.25 On clinical examination, the spectrum of signs as observed and documented by treating physicians from the Talmenes field hospital and higher medical echelons included: redness of the eyes; excessive lacrimation; rhinorrhea; coughing; perspiration; tachypnoea; dyspnoea; orthopnoea; cyanosis; increased tracheal secretions that were frothy and pink in severe cases; hypoxemia with SpO2[5] on pulse oximetry readings as low as 60%; widespread rhonchi and crepitations bilaterally; agitation; and altered levels of consciousness. The severity of symptoms varied among individuals depending on the amount and duration of the exposure. People with mild exposure complained only of tearing and coughing, however people exposed to higher concentrations and for a longer duration, as was the case of those in the immediate vicinity of the point of release of the toxic chemical, had respiratory distress at the time of presentation. Examples of documentary evidence showing hypoxemia and pulmonary oedema are attached in Appendices 29, 30, and 31.

5.26 Individuals who had mild symptoms were managed at the field hospitals of Talmenes, Jarjenaz, Al Tamanah, and Kafr Zita. All these individuals responded well to the administration of oxygen. Those with moderate symptoms benefitted from nebulisation with the bronchodilator salbutamol, and the intravenous steroids hydrocortisone or dexamethasone. Supportive treatment was also provided by means of intravenous fluids and airway suction to remove copious secretions from the respiratory tract. Most of these individuals were discharged from hospital after two to three hours. An example of the treatment provided to one of the patients is attached in Appendix 28.

5.27 Individuals with severe symptoms required intubation and mechanical ventilation. Such facilities were not available at the field hospitals, and therefore all individuals requiring intensive care were transferred to hospitals in Saraqueb and Bab Al-Hawa. As these hospitals too had limited resources, they had to further transfer the most severe cases to outside the Syrian Arab Republic for further medical management. The most severe cases were those of the families whose houses were struck. Every member of these families who was in the house at the time experienced severe symptoms. Five members of the family in the first house and two members of the family in the second house had to be transferred to higher medical echelons for further management. Out of these seven severely exposed persons, three died, including a 65-year-old woman, a teenage girl, and a seven-year-old boy, who was cyanosed at the time of presentation to the hospital and died within an hour or so of exposure. The autopsies of two of these three individuals were conducted outside the Syrian Arab Republic, where they died.

[5] SpO2 = peripheral capillary oxygen saturation.

Al Tamanah

5.28 The village of Al Tamanah is located in the Idlib Governorate of the Syrian Arab Republic. The village is currently under the control of opposition groups. The village population is estimated to be around 20,000. A large number of village residents have moved to other areas within or outside the Syrian Arab Republic. Similarly, 5,000 to 10,000 IDPs have moved from other parts of the country to this village.

5.29 The Mission interviewed 14 individuals from this village between 28 August and 2 September 2014. Individuals interviewed were those who were directly affected by exposure to the chemical or who helped in the evacuation of or provided first aid or medical care to those affected. Interviewees drew sketches, marked maps, and provided photographs and videos in support of their testimony. There were no minors in this group. Among the interviewees, seven persons were exposed to the toxic chemical immediately at the impact sites and suffered adverse effects. This includes five first responders who evacuated casualties from the impact sites. Three people, including two ambulance drivers and one witness from the neighbourhood evacuating casualties in his personal car, suffered secondary contamination. They were contaminated from the vapour off-gassing from the clothing of primary casualties. The details of the interviewees are given in Table 3 below.

TABLE 3: AGE AND GENDER DISTRIBUTION OF INTERVIEWEES, AL TAMANAH

No.	Interviewee	Age	Gender
1.	Treating physician	31	Male
2.	Treating physician	39	Male
3.	Medical assistant	32	Male
4.	Witness/casualty	33	Male
5.	First responder/casualty	30	Male
6.	Casualty	23	Female
7.	Witness	30	Male
8.	Casualty	28	Female
9.	Nurse	31	Male
10.	Witness	41	Male
11.	First responder/casualty	23	Male
12.	Casualty	23	Male
13.	Casualty	34	Male
14.	First responder/casualty	35	Male

5.30 The incidents that could be recalled by the interviewees occurred in the months of April and May 2014. All of the places of impact described by this group of interviewees are located in the village of Al Tamanah. Some interviewees marked the impact points on maps provided by the Mission. This matched the information that was already available to the Mission. The details of five incidents that could be recalled by interviewees are reflected in Table 4 below.

TABLE 4: CHRONOLOGY OF INCIDENTS IN AL TAMANAH VILLAGE

Incident	Date	Time	Place of impact	No. of patients	Deaths
First	12.04.14	22:45	Residential house	25	–
Second	18.04.14	Night	Residential house	70	4
Third	29–30.04.14	Night	Residential house	35	–
Fourth	22.05.14	10:00–11:00	Residential house	12	4
Fifth	25–26.05.14	Night	Residential house	–	–

5.31 The description of all of the incidents is similar to that narrated by the residents of Talmenes. Like the narrative from Talmenes, the following represents the story as told by the residents of Al Tamanah. Here, all but one of the attacks happened during the night. Though people said they were unable to see the helicopters, they heard the sound. This was followed minutes later by warnings on hand-held radios about impact points and the release of chemicals. Some people, who lived close to the impact points and who were exposed, smelled the typical odour of chlorine immediately after the impact of the munitions and tried to escape. The interviewees stated that the public, over a period of time since the outbreak of hostilities in the Syrian Arab Republic, had been educated by local emergency response committees through pamphlets and public address systems about the precautions that needed to be taken in cases of conventional attacks. Warnings to take precautionary measures were issued over hand-held radios to all residents whenever helicopters approached their villages or towns. The first reaction of residents is to seek shelter in basements to protect themselves from flying shrapnel and debris. In case of an attack involving toxic chemicals, people were advised to escape upwind of the point of impact and to higher elevations.

5.32 The witnesses said that, when released, bombs containing toxic chemicals produce a distinct whistling sound as they fall. On impact, these bombs explode, but

the explosion is very low in intensity as compared to conventional barrel bombs that produce a loud bang and widespread destruction. The Mission was informed that conventional munitions usually destroy multiple houses in the areas where they impact, as compared to the toxic chemical munitions that only create a relatively small crater at the point of impact. The resultant crater is not very large and is usually 2 m in diameter; the surrounding structures do not have extensive damage. A significant number of such munitions had failed to explode. The design of these barrel bombs is improvised, with variations seen in the bombs that failed to explode. Essentially, these bombs have an outer encapsulating barrel with fins, which appears to be locally manufactured, and contain an inner chlorine cylinder that is of industrial production. At the time of impact, the outer barrel tears apart instead of splintering, while the neck of the chlorine cylinder where the valve is attached is damaged. For example, one barrel bomb design includes a chlorine cylinder, some yellow powder, and a blue detonation fuse, along with yellow-coloured powder packed tightly around the chlorine cylinder. Pictures and hand sketches provided by interviewees who had seen both unexploded and exploded munitions are attached in Appendices 12 to 20.

5.33 One of the interviewees was a member of the firefighting team and informed the Mission that, in incidents involving toxic chemicals, there were no resultant fires as is the case after a conventional attack.

5.34 Interviewees described the cloud seen by them during an attack that occurred in the daytime on 22 May 2014. The gas cloud was white to yellow coloured, shaped like a tree, reached a height of approximately 40 m, moved slowly in the direction of the wind, and settled towards the ground. The cloud during the night-time attack could not be seen by any of the interviewees, but the atmosphere is described as "dusty and suffocating". The Mission was also informed of one incident in which the local hospital had to be vacated when the gas cloud was moving towards the hospital along with the air current.

5.35 The emanating smell was described to the Mission as irritating to the eyes and nose, typical of chlorine, or similar to the strong household cleaning agent, bleach. This odour immediately induced coughing and a feeling of suffocation among all who were exposed. The odour was absorbed by the clothes worn by people and was also reported by hospital staff as emanating from people who sought medical aid. The hospital staff who treated these casualties were also cross-contaminated and suffered symptoms of exposure. One first responder described the intensity of this odour to be so strong that "I felt as if my head would explode from the smell".

5.36 The Mission was informed that, after the chemical incidents were reported, the ambulances attached to the local hospital in this village, which is called the "Hanin medical point", were dispatched to rescue those who had been exposed. Simultaneously, volunteers from the neighbourhood used their private vehicles to evacuate people to the hospital. Though the evacuation to the village hospital was quick and efficient as neighbours and volunteers contributed to the effort, the evacuation to neighbouring villages or higher medical echelons took a long time. This happened because the roads were in a condition of disrepair and journeys were therefore measured in terms of time rather than distance. For example, a 30 km journey for an ambulance carrying a patient took more than one hour to reach its destination and vehicle failures were common en route.

5.37 The Hanin medical point is run by the Hanin medical charity, and mainly manages wartime traumatic injuries and common medical conditions. There are 14 employees at this medical clinic, including an anaesthetist and cardiologist. The hospital has limited equipment and other medical resources and is equipped to provide basic medical care only. The hospital has one operating room with anaesthesia equipment and basic surgical instruments. Additionally, the hospital has six rooms, some eight to 10 beds, a number of oxygen cylinders, neonatal intensive care units (incubators) for premature babies, and other medical monitoring equipment. There is only one ambulance, which is equipped with an oxygen cylinder and managed by a nurse and a driver, with a capacity to transport two patients at a time. Whenever a large number of people simultaneously arrive at the clinic seeking medical aid, as happens during attacks with chemicals, the hospital staff and resources are overwhelmed. Because there are not enough beds, people are asked to lie on the floor, where they are treated. Though the hospital maintains a register of all patients seeking treatment, during emergency situations involving multiple casualties, the focus of hospital staff is on providing medical care and evacuating people. Patients who need more extensive medical care such as intubation and artificial ventilation are referred to Saraqueb and Bab Al-Hawa, and even outside the Syrian Arab Republic, for treatment.

5.38 From the testimonies collected, the Mission found that the predominant symptoms among those who were exposed to the toxic chemical were coughing, shortness of breath, and tearing of the eyes. Patients also reported a burning sensation in the eyes, redness of the eyes, increased nasal discharge, foaming at the mouth, burning sensation on the face, tightness of the chest, fatigue, a feeling of panic, headache, vomiting, diarrhoea, and in cases of severe exposure, loss of consciousness. The severity of symptoms in some who were in the vicinity of the impact site increased as they were being rescued. The Mission's conclusion in its previous report concerning the possibility of the use of chlorine, either pure or in mixture, is partly based on this symptomatology of gastrointestinal effects along with respiratory symptoms.

5.39 There is no established procedure or designated area at the Hanin medical point hospital for showers or washing arrangements to decontaminate individuals who suffer exposure. During all of the incidents, the only decontamination measures were to wash the face and other exposed parts of body with soap and water. In a few instances, carbonated drinks such as 7Up or Coca-Cola were used for decontamination, but the reason for this choice could not be explained by the interviewees. They follow this method based on hearsay about its efficiency. However, as seen in video recordings, small children were more thoroughly decontaminated by removing all their clothing and bathing them with soap and water. The unique method of decontamination with carbonated drinks was reported by other interviewees also.

5.40 The treating physicians informed the Mission that a large number of individuals who sought medical aid had no adverse clinical signs other than anxiety. Those who were in the immediate vicinity and had inhaled larger amounts of the chemical presented with severe coughing, increased tracheal secretions, bilateral lung crepitations, and cyanosis. There were no signs of physical trauma on the bodies of any of the casualties who reported to the hospital seeking medical aid after exposure.

5.41 Most people who sought medical aid did so because they were in a state of panic and responded well to the first aid provided, consisting of moving the casualties to fresh air, decontamination, and giving reassurance. The treatment provided to others demonstrating clinical signs included oxygen inhalation, nebulisation with the bronchodilator salbutamol, intravenous steroids hydrocortisone and dexamethasone, along with intravenous fluids. The treatment provided was effective and the patients' medical status improved quickly. However, among those who were severely exposed, the response to treatment was poor. These individuals required intubation and artificial ventilation, and therefore needed to be referred to higher medical echelons. Some severe cases did not survive the exposure. Based on information provided by the interviewees, the Mission was able to document eight deaths from two separate incidents in this village.

5.42 The treating physicians diagnosed people based on history, presenting symptoms, clinical examination, and response to treatment. No biomedical investigations or chest radiographs could be carried out at the Hanin medical point because of a lack of such equipment. The chest radiographs that were performed at referral hospitals reveal pulmonary oedema, as told by the treating physicians.

5.43 The treating physicians who were interviewed did not bring along with them any patient registration documents or other documents related to treatment of patients. However, a number of videos of incidents recorded on different dates by the interviewees themselves were provided to the Mission. These videos show people suffering from the effects of toxic gas inhalation being decontaminated, being provided treatment, and being transferred to other hospitals. The treating physicians interviewed can be seen in these videos.

5.44 The Mission was informed that the medical staff had access only to surgical masks and gloves for their own protection and that they were also contaminated from chlorine emanating from people's clothes. The symptoms suffered by medical personnel were not severe and were relieved upon reaching fresh air. However, the ambulance drivers and nurses who had participated in the rescue and evacuation of people to the hospital were more severely affected, with some of them requiring oxygen therapy to relieve symptoms.

5.45 The members of two families, each consisting of four people, died shortly after separate attacks involving the toxic chemical.

5.46 During the attack in the night of 18 April 2014, the father, mother, and two teenage children (a boy and a girl) died. The parents had died almost immediately after the attack. The two children, who were in a critical condition, were referred to hospitals outside the Syrian Arab Republic for better medical management and died at the referral hospital.

5.47 In another case, a mother aged 30 years, her sister aged 16 years, and two children (a five-year-old girl and a four-year-old boy) belonging to the same family died in an attack. The autopsy for the male child aged four years was conducted on 23 May 2014 outside the Syrian Arab Republic. The mother had died in the ambulance while being transferred, her sister died in Talmenes hospital, and the girl died at Saraqueb hospital.

5.48 Members of both these families were IDPs who had taken refuge in Al Tamanah.

5.49 In respect of the effect on animals, birds, and plants, the interviewees informed the Mission that the leaves of trees and plants in the immediate vicinity of locations where toxic chemicals were released turned yellow in colour and became dry. Domestic livestock, pigeons, and chickens of these households were also exposed to the gas cloud and died immediately or soon after exposure.

5.50 One female, a housewife, informed the Mission about the fading of the colour of the clothes that were worn and the change in the feel of the fabric after washing. Another female, also a housewife, said that the dark clothes that she and her family members were wearing at the time of exposure developed white spots.

5.51 The witnesses provided the Mission with multiple video clips that they had filmed. They also drew sketches of the munitions and located the impact points on the village map. A sketch listing the impact points is provided in Appendix 10.

5.52 Mission personnel asked the interviewees who were exposed about their current medical status. None of the interviewees had any remaining symptoms from the time of exposure and all were in good physical health at the time of the interviews.

5.53 One of the witnesses provided the Mission with three different materials taken from one of the munitions and its vicinity. One sample was a yellowish-brown powder (possibly ammonium nitrate) drenched in and with a strong smell of organic solvent (possibly benzene), the second sample was metallic scrapings from the body of the munition, and the third was twigs and leaves from a nearby tree. These samples could not be accepted on account of chain of custody issues.

Kafr Zita

5.54 Kafr Zita is a town in the north of the Syrian Arab Republic, administratively part of the Hama Governorate, located 30 km north of Hama with a population originally of some 18,000 residents; the number has decreased as a result of the conflict. This town is not under the control of the Syrian Government. Most of the houses in the village are single storey and infrastructure such as roads, electricity supply, and water supply is in a state of disrepair. Kafr Zita has frequently been the subject of reports concerning attacks involving chlorine. The Mission was informed by witnesses that the village had suffered hundreds of conventional attacks since the start of the current conflict in the Syrian Arab Republic, as well as frequent attacks involving toxic chemicals.

5.55 Mission personnel interviewed and collected testimonies from nine individuals comprising two treating physicians, two nurses/first responders, and five witnesses/casualties. All individuals interviewed were also witnesses to incidents. The testimonies of this group were collected between 2 and 5 September 2014. All individuals interviewed were either directly affected by exposure to the chemical, helped in the evacuation of casualties, were given first aid, or were given definitive medical care. Among the interviewees, all individuals except for three agreed to be interviewed and recorded both in audio and video format. The three who declined to be recorded on video consented to be interviewed in audio format. Among this group, there were two minors (a boy and girl, brother and younger sister) who were not accompanied by a parent or guardian. At the insistence of the boy, Mission personnel agreed to record his statement in audio format. The team did not cross-examine this individual. As the boy was underage, the interview consent form was

not signed and the discussion in this context was recorded. The boy is among the three who agreed that the interview was to be recorded in audio format only. Though the boy gave a statement consistent with other interviewees, his statement is not included in the assessments conducted by the Mission. The age/gender distribution of interviewees is provided in Table 5 below.

TABLE 5: AGE AND GENDER DISTRIBUTION OF INTERVIEWEES, KAFR ZITA

No.	Interviewee	Age	Gender
1.	Treating physician	44	Male
2.	Treating physician	44	Male
3.	Witness	27	Male
4.	First responder	21	Male
5.	Casualty	19	Male
6.	Casualty	30	Female
7.	Casualty	21	Male
8.	Casualty	50	Female
9.	Nurse/first responder	35	Male

5.56 The town of Kafr Zita had until recently two hospitals, called Eastern and Western hospitals in accordance with their location within the town. They are also known as hospitals Number 5 and 6, respectively. On 22 May 2014, the Western hospital (hospital Number 6) came under attack from toxic chemicals, in which the medical staff also suffered symptoms of exposure. Witnesses also reported that the Eastern hospital (hospital Number 5) came under conventional attack on 22 June 2014 and was completely destroyed. Kafr Zita currently only has one functioning hospital, the Western hospital, though the upper floors of the three-storey buildings are unusable.

5.57 The Western hospital was established some 10 years ago but was converted to a general hospital recently, after the outbreak of the conflict. Medical care is provided to everyone in the region and the hospital also treats patients from Zour Al-Hisa, near the Al-Rayd region located between Taybat Al-Imam and Latamneh, from Halfaya, and from Morek. The ground floor of the hospital has three operating rooms: one for general surgery, a second for orthopaedic surgery, and a third for gynaecology. Also on this floor is an intensive care unit with three beds, a ward with

two beds, a radiograph imaging room, and an emergency room. A waiting room is located in the centre of the hospital. The first and second floors have no windows or doors as a result of damage caused when a conventional munition exploded some 15 m from the hospital. The first and second floors have six beds each, but patients are generally not admitted to these floors. To prevent any further physical damage to the hospital, a reinforcing wall has been built around the ground floor and two rock walls have been erected in front of the hospital.

5.58 The hospital has extremely limited resources in terms of equipment, drugs, and other medical supplies. For example, the hospital has a total of only 30 oxygen cylinders. These numbers were augmented after 11 April 2014 when, after an appeal, donors supplied oxygen cylinders, nebulisers, antidotes, cortisones, and protective masks. The medical staff include one cardiologist, two general surgeons, two orthopaedic surgeons, two resident physicians, two medical interns, two radiograph imaging technicians, two anaesthetic technicians, approximately 10 nurses, three cleaning staff, and one cook. The hospital vehicle fleet has six ambulances and four pick-up trucks that are used for medical evacuation. Each ambulance is staffed with a driver and an assistant. In the event of a need for more ambulances, these are requested from the neighbouring hospitals of Kafr Nabouda and Latamnah, and the Al-Rahma hospital in Sheikh Mustafa.

5.59 Kafr Zita and its neighbourhood have been subjected to some 17 attacks involving the use of toxic chemicals, with the first attack occurring on the night of 10 April 2014 and the latest incident being reported to the Mission on 30 August 2014. Because of the frequency of these attacks and constantly living in a war zone, the witnesses had essentially lost their sense of the dates and times of the various incidents. Witnesses informed the Mission that all except one of the attacks (which happened between 18:00 and 19:00 on 11 April 2014) occurred at night. An opinion was expressed that in the Kafr Zita area, the air movement is minimal at night-time and allows chlorine to hang in the environment for longer. Furthermore, the night provides relative safety to the attackers. The weather conditions on the dates of the attacks were described as typical for the season, with temperatures ranging between 20 and 30o C. The details of attacks that were confirmed by multiple interviewees are provided in Table 6 below.

TABLE 6: CHRONOLOGICAL LISTING OF ATTACKS WITH BARREL BOMBS CONTAINING TOXIC CHEMICALS THAT COULD BE RECALLED AND CONFIRMED BY MORE THAN ONE INTERVIEWEE

No.	Date	Place	Time	No. of Patients
1.	10-11 April 2014	Kafr Zita	Midnight	12
2.	11 April 2014	Kafr Zita	18:00 – 19:00 hrs	
3	12 April 2014	Kafr Zita	21:00 – 22:00 hrs	5
4.	14 April 2014	Halfaya	23:00 hrs	4
5.	16 April 2014	Al-Zowar region	22:00 hrs	5
6.	18 April 2014	Kafr Zita	22:30 hrs	35
7.	19 May 2014	Kafr Zita	20:00 hrs	2
8.	21 May 2014	Kafr Zita	20:00 hrs	4
9.	22 May 2014	Kafr Zita	20:00 hrs	38
10.	29 May 2014	Latamnah region	Night	17
11.	?? June 2014	Morek frontline	–	–
12.	27 July 2014	Kafr Zita	19:00 hrs	–
13.	28 August 2014	Kafr Zita	21:30 – 22:00 hrs	–
14.	30 August 2014	Kafr Zita	–	–

5.60 The Mission was informed by the witnesses that toxic chemicals were used by means of barrel bombs that were not of standard design and appeared to be improvised. Some had seen and photographed these bombs, both those that had exploded and those that failed to function as designed. The design of these barrel bombs varies, but essential components include an outer shell with fins at the tail end; an inner cylinder usually painted in yellow and filled with chlorine and in some instances marked with the symbol "CL2". The length of barrel bombs is approximately 2-2.5 m with an inner diameter of approximately 1 m. The detonation mechanism varies from single to multiple detonators. The newer barrel bombs also have a container with a liquid and powdery substance that is yellowish-brown in colour. The Mission was provided with a video made of one such device. This video shows a cylinder, a liquid container marked with "97-99% purity H2SO4", and a light yellow-brown powdery substance. The identity of the powdery substance could not be confirmed by the presenter in the video as there is no local analytical capacity. A sketch and screen-grab picture of this particular assembly of barrel bomb by one interviewee are provided in Appendix 19.

5.61 The interviewees informed the Mission that, when thrown from helicopters, the falling cylinders produced a whistling sound akin to a diving fighter aircraft. A number of these devices failed to explode. Those that did produced a muted/low intensity explosion, rupturing the outer barrel and damaging the valve on the chlorine cylinders. The damage to structures is only seen at the point of direct impact; other structures in the vicinity escaped physical damage. A video of the point of impact provided to the Mission shows a crater of 3.6 m diameter and 1.4 m depth, with minimal damage to buildings in the vicinity. A screen-grab picture from a video of one such impact site provided by an interviewee is shown in Appendix 21.

5.62 Most of the individuals from this town who were interviewed reported witnessing the attack that occurred during daylight. The gas that was released during this attack was described by interviewees as being yellow in colour. The gas cloud initially rose to some 50 to 60 m high and then settled towards the ground, moving in the direction of the air current. The smell of the gas was typically described as strong, pungent, and chlorine-like, with some interviewees comparing it to the smell of household cleaning agent but many times stronger. The Mission was informed that the peculiar odour was noticeable from a significant distance. This odour disappeared from the area in normal weather conditions after a gap of some 30 to 45 minutes.

5.63 The Mission was told that the public was informed about imminent attacks through messages relayed on hand-held radios. Spotters would communicate information about movements of aircraft. On receiving such information, specifically for the Kafr Zita area, the local people would escape and take refuge in basements to shield themselves from frequent attacks involving conventional munitions. Once the attack happened, another message would again be relayed by the spotters in the vicinity, giving the location and type of attack and further instructions on safety precautions.

5.64 Witnesses in this group recounted the frequency of attacks, the life of isolation, and the lack of essential services as extremely stressful conditions. They could not recall the dates of all the attacks; the data compiled by the Mission was based on an analysis of all of the testimonies, and was also extracted from the medical records provided by the treating physicians.

5.65 One incident was related in detail by the family members and a relative of the household whose house the munition struck, and was corroborated by other interviewees. This incident, as communicated to the Mission, is described below.

5.66 The incident occurred on 27 July 2014 "one day before the end of Ramadan and a few minutes before the time to end the daily fast", at around 19:00. The bomb struck the house of a relative of one of the witnesses. The family that was exposed to toxic chemicals and interviewed had taken refuge in the basement of the house as protection against a conventional attack. The bomb containing the toxic chemical impacted some 50 m from their place of refuge. The explosion was not loud. This basement is approximately 10 x 10 m in size and has two doors, one opens to the north and the other to the south-east. The door on the south east opens onto a street that is at a higher elevation than the street on the north. After the toxic release, a message was again conveyed to the public on hand-held radios to escape to higher ground, rather than staying in basements. Individuals who tried to escape using the door facing north ran into the cloud of chlorine that was being carried by the air current from north to south. As a consequence, these individuals were exposed to higher concentrations of chlorine and suffered more severe symptoms. This same basement shelter was destroyed in a direct hit the next day with a conventional bomb and a cluster bomb.

5.67 The medical documents provided to the Mission by the treating physicians list documentary details of patient names, dates of attack, location, diagnosis, treatment provided, and the name of the treating physician. An example of these medical documents is attached in Appendix 28. The compilation of these medical documents is provided in Table C (see Attachment), which shows that 122 individuals were treated at Kafr Zita on various dates. The names of casualties have been anonymised.

5.68 Each attack with toxic chemicals produced multiple victims who complained of symptoms of respiratory insufficiency. People who were affected did not have any signs of physical injury to their bodies, except for one elderly man. This person presented with symptoms of inhalation of toxic gas along with a head injury from falling rubble, and died en route while being transferred outside the Syrian Arab Republic for medical treatment. His 25-year-old daughter, who was exposed to severe concentrations of chlorine in the same incident, died a few days later despite being transferred and treated outside the Syrian Arab Republic.

5.69 The symptoms of those affected varied from mild or moderate to severe, depending on proximity to the point of release of toxic chemical, the amount of gas inhaled, and the duration of exposure. The young and elderly patients showed relatively more severe symptoms. Most individuals presenting at the hospitals for treatment had mild to moderate exposure, and a few showed severe symptoms.

5.70 The common presenting symptoms included coughing, difficulty breathing, rapid breathing, rapid pulse and palpitation, foaming at the mouth, redness of the eyes, burning sensation in the eyes, tearing, vomiting, pain in the throat, hoarseness, itching in the nose and on exposed skin, anxiety, drowsiness, headache, and loss of consciousness. The most severe cases had haemoptysis, with pulse oximetry readings below 80%, and the treating physicians informed the Mission that the chest radiographs showed non-cardiogenic pulmonary oedema. These individuals developed Acute Respiratory Distress Syndrome. Most of the severely affected also presented with an immediate history of unconsciousness. All severe cases had to be

managed in the intensive care unit of the hospital and needed assisted respiration. A few people were exposed to similar incidents more than once and the second time suffered more severe symptoms and needed treatment for a longer duration.

5.71 The decontamination method available to people was washing exposed areas of skin with soap and water. The hospital in Kafr Zita does not have an established procedure or the facilities to carry out mass decontamination.

5.72 All individuals presenting at the hospital who had suffered exposure had a pungent and strong smell of chlorine emanating from their clothes. As the protective measures available to the hospital staff were limited to latex gloves and surgical masks, some staff members were cross-contaminated and suffered the effects of inhaling vapour emanating from the clothes of patients. First responders are rarely equipped with protective gas masks and thus use improvised methods to protect themselves, such as using wet towels when rescuing and evacuating people. The medical workers who were instrumental in the evacuation of the affected also invariably suffered some clinical effects. The common symptoms experienced by the hospital staff included coughing, difficulty breathing, tearing, redness of the eyes, and pain in the throat. Most of those who were cross-contaminated suffered from mild symptoms and obtained relief with first aid. No cross-contaminated staff required intensive treatment or transfer to a higher medical echelon.

5.73 The treating physicians' observation of clinical signs include coughing, rhinorrhea, redness of the eyes, excessive lacrimation, cyanosis, increased tracheal secretions, agitation, tachypnea, and bilateral crepitations in the pulmonary lobes. All those exposed had compromised values of pulse oximetry: those with minimal exposure had SpO2 readings above 85%, while the most severe cases had SpO2 readings of around 70%. Cyanosis, haemoptysis, lung crepitations, and pulmonary oedema were observed in those individuals who had been exposed to severe concentrations. The level of pulmonary oedema in severe cases was observed to increase in sequential clinical examinations and chest radiographs. None of those who presented with a history of exposure to chemical agent had any physical injury on their bodies except for the elderly man, who also suffered a head injury during the incident.

5.74 Mild and moderate cases were discharged from the hospital after receiving first aid. Severe cases were either detained locally in the hospital or transferred to a higher medical echelon outside the Syrian Arab Republic. The severe cases were kept in hospital and treated intensively for up to three weeks.

5.75 Treatment for individuals who had been exposed consisted essentially of oxygen inhalation, exposure to fresh air, nebulisation with bronchodilators, intravenous hydrocortisone and dexamethasone, intravenous fluids, and anti-emetics. Most individuals with mild symptoms were given treatment as out-patients and discharged. Those with moderate symptoms were also treated as out-patients but had to come for nebulisation therapy over many days to help improve the respiratory effort.

5.76 Besides harming humans, the toxic chemical also killed livestock and domestic birds, including chickens and pigeons. The trees in the vicinity were also affected as their leaves turned yellow and dried, and fruit on trees dropped to the ground. Furthermore, household items such as mattresses and clothes absorbed the smell of chlorine and were left unusable.

5.77 The individuals who were interviewed and had been exposed to toxic chemicals did not complain of any continuing medical issues post-incident, except for occasional bouts of coughing and generalised weakness. At the time of the interviews, none of these individuals was continuing with any medicines that had been initially prescribed. A discussion between the medical specialists in the Mission led to the conclusion that any medical examination of this group would be fruitless.

6. DISCUSSION OF INCIDENTS

6.1 The Mission has compiled statistical data that has emerged from the testimonies of interviewees. These statistics are provided in Table 7 below.

TABLE 7: OBSERVATIONS BY THE INTERVIEWEES

Observation	Talmenes	Al Tamanah	Kafr Zita
Saw/heard the helicopter	12	14	6
Heard the barrel bomb falling	10	11	5
Saw the barrel bomb or its remnants	4	8	2
Mentioned muted sound of explosion	6	4	5
Smelled the chlorine/odour	13	10	6
Saw the yellow cloud or dust	10	10	6
Insignificant damage to surrounding structures	5	3	4
Large number of casualties	13	11	6
Dead animals	7	1	1
Vegetation damage	8	6	2
Bleaching of clothes	3	2	0

6.2 Of a total of 37 interviewees, 32 saw or heard the sound of the helicopter over the village at the time of the attack with barrel bombs containing toxic chemicals. Twenty-six individuals heard the peculiar (whistling) sound of the falling barrel bombs containing toxic chemicals. Individuals who did not see or hear the helicopter or the sound of the falling barrel bomb were indoors. Sixteen, mostly men, visited the impact site later and saw the barrel bomb or its remnants.

6.3 The loudness of the explosion from barrel bombs containing toxic chemicals was described by 15 interviewees as relatively low in comparison to the loud explosion of a conventional bomb. The residents of these places are accustomed to the sounds of different explosions and clearly distinguished the intensity of sounds.

6.4 The colour of the gas cloud that was released after the barrel bomb containing toxic chemicals impacted with the ground is described by 26 individuals. This colour is described as ranging from honey coloured to yellow to whitish outer with yellow centre, to greenish. As a large number of such attacks happened during night-time, it was not possible for some interviewees to comment on the colour of the gas cloud. A large number of individuals, 29, smelled the distinctive odour of the gas cloud. This odour is mainly described as intense, chlorine-like, similar to cleaning material used for cleaning toilets but much stronger, and the odour disappears after some time from the air but remains longer in absorbent material such as a mattress.

6.5 Thirty interviewees provided information about a large number of casualties resulting from attacks with barrel bombs containing toxic chemicals. All medical staff, from ambulance drivers to treating physicians, mentioned a large number of casualties. These casualties were documented in different hospitals at which they sought medical aid. The primary reason for there being mass casualties is that people did not have adequate knowledge to escape upwind and to higher ground, and ended up hiding in basements and such where the chlorine, which is denser than the atmosphere, settled. Furthermo e, the delayed awareness of attacks at night-time and bombs impacting on residential areas also contribute to mass casualties. In all these incidents, medical staff specifically observed an absence of physical injuries in those who were exposed, and informed the Mission to that effect.

6.6 Most of the medical staff suffered from some symptoms of exposure when transporting casualties or providing aid to them. It was a common observation that medical staff were affected by the intense smell of chlorine emanating from the clothes of people who were exposed during an attack. It should be noted that patients were not decontaminated before being brought inside the hospital; the medical staff did not have specific chemical protective equipment and had to use surgical masks and latex gloves that do not provide any protection from toxic chemicals. The intensity of symptoms suffered by medical staff was mild to moderate, with most reporting tearing and rhinorrhea. These symptoms were relieved in all cases by moving outside into the fresh air. However, the symptoms experienced by ambulance drivers were relatively more intense than those of other medical staff, as the drivers transported multiple casualties straight from the attack location during the same trip and in the enclosed space of an ambulance.

6.7 Twelve interviewees described and compared the destructive force and damage caused by barrel bombs containing toxic chemicals to conventional munitions. This damage was minimal and limited to adjoining structures in comparison to attacks involving conventional munitions, in which many houses in the neighbourhood are

destroyed. The lack of extensive damage to surrounding structures can be observed in multiple videos of impact sites provided to the Mission. This can be seen in the impact point screen-grab from the video provided in Appendix 21. There was also a comparison by several interviewees concerning the splintering effect observed in conventional munitions as compared to barrel bombs containing toxic chemicals, which essentially "open up and do not disintegrate". A screen-grab from video footage of such an opened-up barrel bomb is provided in Appendix 16.

6.8 Nine individuals who were residents and neighbours at the impact sites described the death of livestock and birds. The birds (chickens and pigeons) in these houses died immediately on exposure to gas. The smaller animals such as calves, goats, and sheep also died within minutes to an hour of exposure to toxic chemicals, whereas the larger animals, adult cows, died after some eight to 10 hours.

6.9 Sixteen interviewees, mostly those who lived in or adjacent to houses where barrel bombs containing toxic chemicals impacted, described the adverse environmental effects. These included leaves drying, wilting, and changing colour to yellowish, as well as fruits dropping from the trees, immediately or within a short period of time. The statement of one witness describes such effects by saying "it appeared as though the trees had never been watered".

6.10 Five of the interviewees mentioned the bleaching of dark-coloured clothes that were worn by their family members at the time of the incidents.

6.11 From the extensive testimonies provided to the Mission, individuals, while experiencing the same event, highlighted some observations according to the perspective of their own educational background, societal role, or profession. For example, housewives described the change in colour of dark clothes that became lighter as if bleached, a family noticed excessive/rapid/unusual rusting of household containers after some weeks, and a firefighter noticed the absence of fires in the attacks.

7. DISCUSSION OF MEDICAL SYMPTOMS, SIGNS, AND TREATMENT

7.1 The symptoms of exposure, the signs observed by the treating physicians, and the treatment that was provided to casualties are discussed below. These are based on interviewees' testimonies, as well as medical files handed over to the Mission.

7.2 The range of symptoms experienced by the casualties as a result of exposure to toxic chemicals included coughing, shortness of breath, tightness in the chest, suffocation, redness of the eyes, increased mouth and nose secretions, hoarseness of voice, agitation or disorientation, weakness, loss of consciousness, abdominal cramps, nausea, and vomiting. In a few cases, skin irritation (itching with/without rash) was reported. Table 8 below provides the frequency distribution of the reported symptoms. Symptoms that are similar but explained using different terminology are grouped together.

7.3 The common symptoms as reported by the treating physicians and nurses, or those observed by witnesses, are not included in these statistics. The symptoms that were experienced by only those interviewees who were exposed to toxic chemicals are reported here. The Mission did not ask the casualties any leading questions about symptoms and only those symptoms that were mentioned by casualties while narrating their experiences are reported.

TABLE 8: FREQUENCY DISTRIBUTION OF THE REPORTED SYMPTOMS AS EXPERIENCED BY THE CASUALTIES WHO PROVIDED THEIR TESTIMONY TO THE MISSION

Symptom	Frequency of Occurrence (Reported/Total)		
	Talmenes	Al Tamanah	Kafr Zita
Coughing	4/6	5/6	4/5
Shortness of breath/difficulty breathing	6/6	6/6	4/5
Tearing, burning sensation in eyes	6/6	5/6	3/5
Nausea/vomiting	1/6	6/6	4/5
Disorientation	5/6	1/6	1/5
Loss of consciousness	5/6	1/6	3/5
Burning sensation on exposed skin/nose	3/6	2/6	1/5
Skin turned blue (cyanosis)	2/6	–	–
Frothy secretions from mouth	2/6	–	–
Feeling of tiredness	2/6	3/6	–
Feeling of constriction in chest	1/6	–	3/5
Feeling of panic	1/6	1/6	–
Headache	1/6	1/6	–
Nausea	1/6	1/6	–
Physical injuries	0/6	0/6	0/6

7.4 The variety and intensity of symptoms experienced by casualties varied depending on the distance from the point of impact, duration of exposure, location (downwind or upwind), use of protective measures, and receipt of treatment in terms of time lapse and treatment availability. Individuals who were closer to the point of impact of barrels containing toxic chemicals experienced more diverse and intense symptoms.

7.5 Cumulatively, 13/17 experienced coughing, 16/17 had shortness of breath, 14/17 experienced burning in the eyes and tearing, 6/17 experienced a burning

sensation in the nose or on exposed skin, 11/17 had nausea or vomited, and 9/17 lost consciousness.

7.6 It becomes evident from data analysis that the toxic chemical used at Talmenes affected predominantly the eyes and respiratory system, whereas in the villages of Al Tamanah and Kafr Zita, casualties also reported gastrointestinal symptoms. Gastrointestinal symptoms such as nausea and vomiting are the result of either reflex reaction to the exposure, as seen from the incidents in Talmenes, or could be due to a mixture of chemicals, as seen in Al Tamanah and Kafr Zita, where a large proportion of casualties reported such symptoms.

7.7 In low concentrations, toxic water-soluble chemicals (such as chlorine) cause irritation and have corrosive properties and on contact with eyes, moist skin, or on inhalation react primarily with mucous membranes/epithelium, causing sensory irritation leading to a feeling of burning, itching, tearing, and rhinorrhea. These were amongst the most frequently reported symptoms.

7.8 The respiratory symptoms among the casualties appeared almost immediately after the exposure to toxic chemicals and persisted for a few hours and in some cases for a few days. The cough was non-productive in the majority of cases. A productive cough with whitish to yellow expectoration and in some cases blood-tinged expectoration (haemoptysis) was seen in those who had been exposed to severe concentrations. A dry cough occurs as a result of irritation of the upper respiratory tract. When they affect the lower respiratory tract, toxic gases result in an excessive production of inflammatory fluids leading to expectoration. One of the immediate reactions to exposure to toxic (irritant or corrosive) chemicals is bronchospasm, whereby irritated smooth muscles of the bronchi induce constriction and the lumen of the respiratory tract becomes narrowed. In the case of chlorine, its oxidative properties and formation of hypochlorous and hydrochloric acid resulting from chlorine's reaction with water lead to damage of the parenchyma of the lungs. The damaged lung parenchyma filled with inflammatory fluid in conjunction with bronchospasm decreases the capacity for oxygen exchange. The narrowed lumen of the respiratory tract also leads to wheezing, which is the whistling sound produced by a narrowed respiratory tract. This results in symptoms of shortness of breath, increased respiratory rate, tightness of chest or chest pain, and expectoration. The bronchospasm thus induced is usually relieved by stopping the exposure to the toxic substance. However, the damage to the parenchyma of the lung, leading to pulmonary oedema depending on its extent, may require assisted ventilation for a prolonged period of time.

7.9 Though the Mission cannot determine the dosages and durations of exposure, according to available literature, chlorine can be smelled at a concentration of 0.1/0.2 ppm.[6] Exposure to 1-3 ppm of chlorine produces primarily nose irritation lasting up to an hour; 5 ppm produces irritation of the eyes; 5-15 ppm irritates the throat and causes headache; 30 ppm leads to pain in the chest, nausea and vomiting, coughing, and difficulty breathing; and concentrations of 40-60 ppm lead to pulmonary oedema. Large doses of more than 400 ppm can cause death within 30 minutes and 1,000 ppm is fatal within a minute. Children are affected more severely as they inhale larger quantities of gas due to their greater lung surface area to body weight ratio and increased minute volume to weight ratios.

[6] ppm = parts per million.

7.10 The reduced oxygenation also leads to central nervous system hypoxia (tissue oxygen deficiency), with patients complaining of symptoms of disorientation, agitation, weakness, headache, and altered levels of consciousness.

7.11 As reported by the treating physicians, a large number of casualties presented in a state of panic. This is attributable to the psychological effects of living in a conflict area with incidents of the use of toxic chemicals.

7.12 The treatment provided included oxygen therapy, application of intravenous fluids, and broncholytic and steroid therapy.

7.13 The mainstay of the treatment provided was oxygen, which provided relief to casualties within minutes. Oxygen relieves hypoxia in exposed patients and calms those who are in state of panic, thus bringing immediate relief. The efficacy of oxygen administration is evident in the readings of oxygen saturation seen in the available videos from hospitals that show improved SpO2 values on inhaling oxygen.

7.14 The use of bronchodilators relaxes the constricted airways, thus improving oxygenation and relieving symptoms. The efficacy of steroids is unproven but is frequently used after exposure to toxic gases due to its anti-inflammatory effects.

7.15 The use of intravenous fluids ("serum") as reported by a large number of casualties and physicians is more for providing quick access to the peripheral vessels for intravenous drug administration. Fluids replenishment in treating the effects of exposure to toxic gas or vapour seems to have less value, as the mechanism of action of those toxic substances does not create significant fluid loss or shift in the body. Moreover, in cases of pulmonary oedema, administration of fluids has to be carefully justified and weighted.

7.16 There were other medicines used for treatment, such as antibiotics, pain killers, and anti-emetics. The use of these drugs was based on the patients' symptoms, medical status, and drug availability.

7.17 Cases of exposure to high concentrations of toxic chemical that developed pulmonary oedema required intensive airway management (intubation) and mechanical ventilation. Such treatment was not available at field hospitals but at higher medical echelons, namely, Saraqueb and Bab Al-Hawa, or outside the Syrian Arab Republic.

7.18 There were two cases — from two separate incidents in two different villages — involving casualties who were pregnant. Both babies were delivered normally on the expected delivery dates and were healthy.

7.19 The outcome of exposure to the toxic chemicals used was fatal in 13 cases (three in Talmenes, eight in Al Tamanah, and two in Kafr Zita). One had died immediately, nine en route to higher medical echelons, and three in a specialised hospital outside the Syrian Arab Republic. All these individuals were close to the impact site of munitions containing toxic chemicals.

Attachment

DESCRIPTION OF EVIDENCE

1. Video MAH02613: A casualty discussing his medical condition after exposure to toxic chemicals.
2. Video MAH02649: A treating physician at an intensive care unit of the hospital taking a sample of tracheal secretions from a patient. The tracheal secretions in his opinion have dissolved blood.
3. Video MAH02650: A treating physician at an intensive care unit of the hospital taking a sample of tracheal secretions from another patient.
4. Video MAH02656: A treating physician at an intensive care unit of the hospital taking a sample of tracheal secretions from the third patient. The tracheal secretions in his opinion have dissolved blood.
5. Video MAH02657: A treating physician discussing the case of one casualty who has hypoxemia after exposure to toxic chemicals.
6. Video MAH02667: A treating physician discussing the case of another casualty who has hypoxemia after exposure to toxic chemicals.
7. Video MAH02708: A treating physician, an intensive care specialist, discusses the case of a 35-year-old woman who is on assisted ventilation after exposure to toxic chemicals.
8. Video MAH02709: A treating physician discussing the case of another casualty who has hypoxemia after exposure to toxic chemicals. The chest radiograph, in his opinion, shows extensive bilateral pulmonary oedema.
9. Video MAH02710: A treating physician describing the condition of a pregnant woman who was among the casualties that were exposed to toxic chemicals.
10. Video MAH02745: Interview with the mother of a casualty giving her account of what happened to her daughter.
11. Video MAH02746: Continuation of video MAH02745.
12. Video MAH02747: A witness whose parents were exposed to toxic chemicals providing his account of the incident.
13. Video MAH02748: Continuation of video MAH02745.
14. Video MAH02753: A witness talks about the use of toxic chemical agents in Kafr Zita, the region of Hama, and in Talmenes, in the suburbs of Idlib.
15. Video MAH02754: A witness's video records of his travel between the village of Kafr Zita and Bab Al-Hawa.
16. Video MAH02755: Continuation of video MAH02754.
17. Video MAH02756: A witness video records his detailed plan about documenting his travel to the places where toxic chemicals were used.
18. Video MAH02757: Treating physicians account of casualties that reported to their hospital after one incident wherein toxic chemicals were used.
19. Video MAH02767: Continuation of video MAH02755.

20. Video MAH02768: Continuation of video MAH02767.
21. Video MAH02769: Continuation of video MAH02768.
22. Video MAH02770: A treating physician discusses the casualties of 11 April 2014 after their exposure to toxic chemicals.
23. Video MAH02771: A treating physician discusses the casualties of 11 April 2014 after their exposure to toxic chemicals.
24. Video MAH02772: Continuation of video MAH02771.
25. Video MAH02773: This video shows the point of impact of barrels.
26. Video MAH02774: Continuation of video MAH02773.
27. Video MAH02775: Video of the remnants of barrel bombs.
28. Video MAH02776: The impact point of barrel bombs on 18 April 2014.
29. Video MAH02777: Continuation of video MAH02776.
30. Video MAH02778: A witness travelling from one village to another.
31. Video MAH02779: The impact point of barrel bombs on 11 April 2014.
32. Video MAH02780: The village of Kafr Zita.
33. Video MAH02781: A witness heading towards Talmenes.
34. Video MAH02782: A witness travelling from one village to another.
35. Video MAH02783: A witness travelling from one village to another.
36. Video MAH02786: A treating physician discussing the casualties that were exposed to toxic chemicals.
37. Video MAH02787: The impact point of barrel bombs on 21 April 2014.
38. Video MAH02788: Impact point of the first barrel bomb in Talmenes village.
39. Video MAH02790: Travel video of a witness.
40. Video MAH02791: Video from the Bab Al-Hawa hospital.
41. Video MAH02807: A pregnant casualty describes the incident and her exposure to toxic chemicals.
42. Video entitled "Coverage of the attack with chlorine toxic gases — The Syrian Media Centre": A video about the attack with barrel bombs containing toxic chemicals.
43. Video entitled "Talmenes — suburbs of Idlib — injury of children due to the attack with chlorine toxic gases": Casualties being treated at the hospital.
44. Video entitled "Attack on Talmenes village in the suburbs of Idlib with chlorine toxic gas": A video about the attack on the Talmenes village with toxic chemicals.
45. Video entitled "Attack on Talmenes village in the suburbs of Idlib with chlorine toxic gas 2": Same as the previous video.
46. Video 3: The video shows the village of Mashashyah.

47. Video 00050: Video of casualties after exposure to toxic chemicals.
48. Video 00051: Video of casualties after exposure to toxic chemicals.
49. Video 00052: A witness describes the incident of the use of toxic chemicals.
50. Video 00053: Casualties being treated at the hospital.
51. Video 00054: Casualties being treated at the hospital.
52. Video 00056: Casualties evacuation to the hospital.
53. Video 00057: A treating physician discussing the casualties that were exposed to toxic chemicals.
54. Video 00058: A treating physician discussing the casualties that were exposed to toxic chemicals.
55. Video 00060: Casualties being treated at the hospital.
56. Video 00061: A casualty being treated at the hospital.
57. Video 62: A hospital staff member talking about mass casualties at the hospital after an incident involving toxic chemicals.
58. Video 100_2177: Casualties being treated at the hospital.
59. Video 100_2180: Casualties being treated at the hospital.
60. Video 100_2181: Casualties being treated at the hospital.
61. Video 100_2184: Casualties evacuation to the hospital.
62. Video M2U00331: The video shows the impact point of a barrel bomb at Al Tamanah village on 12 April 2014.
63. Video 100_2270: Casualties being treated at the hospital.
64. Video 100_2271: Video about panic among the public after suspected exposure to toxic chemicals.
65. Video 100_2272: Casualties being treated at the hospital.
66. Video 100_2273: Casualties being treated at the hospital.
67. Video 100_2274: Casualties being treated at the hospital.
68. Video 100_2275: Casualties being treated at the hospital.
69. Video 100_2276: Casualties being treated at the hospital.
70. Video 100_2277: Casualties being treated at the hospital.
71. Video M2U00330: The video shows the impact point of a barrel bomb.
72. Video entitled "[redacted]": A video showing an unconscious casualty.
73. Video entitled "[redacted]": A casualty being treated at the hospital.
74. Video M2U01555: Casualties evacuation to a hospital on 22 May 2014.
75. Video 100_2603: Casualties being treated at the hospital.
76. Video 100_2604: Casualties being treated at the hospital.

77. Video 100_2610: Casualties being treated at the hospital.

78. Video 100_2613: Casualties being treated at the hospital.

79. Video 100_2614: Decontamination of a casualty at the hospital.

80. Video 100_2615: Continuation of previous video 100_2614.

81. Video 100_2616: Transfer of casualties to higher medical echelons.

82. Video 102_2350: Casualties being treated at the hospital.

83. Video 102_2351: Casualties being treated at the hospital.

84. Video 102_2353: Casualties being treated at the hospital.

85. Video 102_2354: Casualties being treated at the hospital.

86. Video M2U01556: Casualties being treated at the hospital.

87. Video M2U01576: A barrel bomb containing toxic chemicals that failed to function.

88. Video entitled "Giving first aid to an injured woman and her son who inhaled toxic gases dropped by helicopters in Al Tamanah on 29 April 2014": Casualties being treated at the hospital.

89. Video entitled "Al Tamanah chlorine gas": Casualties being treated at the hospital.

90. Video entitled "Helicopter dropping barrel containing chemicals on Al Tamanah on 19 July 2014, [no injuries]": The incident of 19 July 2014.

91. Video entitled "Chemicals": Impact point of 22 May 2014.

92. Video entitled "Removing the barrel containing chlorine gas in Al Tamanah on 26 May 2014": A barrel bomb with toxic chemicals being removed from the impact site.

93. Video entitled "Dismantling the barrel containing chlorine gas dropped on Al Tamanah on 26 May 2014": A barrel bomb with toxic chemicals being dismantled.

94. Video entitled "Helicopters dropping barrels containing toxic gases on Al Tamanah on 22 May 2014": The incident of 22 May 2014.

95. Video entitled "The moment the container was dropped by the helicopter on Al Tamanah in Rif Idlib on 28 December 2013": The incident of 28 December 2013.

96. Video entitled "Injured people as a result of the toxic gas attach on Al Tamanah on 22 May 2014": A hospital staff member talking about the incident of 22 May 2014.

97. Video entitled "The site where one of the containers with toxic chlorine gas was dropped but did not explode in Al Tamanah on 26 May 2014": A barrel bomb from the incident of 26 May 2014 that failed to function.

98. Video entitled "The site where the second barrel containing toxic chlorine gas was dropped on Al Tamanah on 30 April 14": The impact site of a barrel bomb containing toxic chemicals on 30 April 2014.

99. Video entitled "The site where a chemical barrel was dropped on Al Tamanah on 13 April 2014": The incident of 13 April 2014 wherein a barrel bomb containing toxic chemicals was used.

100. Video entitled "The site where a chemical barrel was dropped on Al Tamanah on 13 April 14": The same as the previous video.

101. Video entitled "The site where a chemical barrel was dropped on Al Tamanah on 13 April 2014": The same as the two previous videos.

102. Video entitled "The site where a chemical barrel was dropped on Al Tamanah on 13 April 2014": The same as the three previous videos.

103. Video entitled "The site where a barrel containing chlorine gas was dropped on Al Tamanah on 26 May 2014": The impact site of a barrel bomb containing toxic chemicals on 26 May 2014.

104. Video entitled "Transport of casualties of toxic gases in Al Tamanah on 22 May 2014": Voice of the commentator: Casualty evacuation after the incident of 22.05.14.

105. Video entitled "Important media material — Commander of the Mohamed Sawt Al-Haqq engineering brigade giving explanations on one of the chlorine barrels dropped on Kafr Zita — suburbs of Hama" in Arabic: A commentator explaining an improvised barrel bomb containing a mixture of chemicals along with a gas cylinder.

106. Video 20140414_230306: Casualties being treated at the hospital.

107. Video 20140414_230526: Casualties being treated at the hospital.

108. Video 20140416_224606: A treating physician discusses casualties after exposure to toxic chemicals.

109. Video 20140513_081734: Kafr Zita on 13 May 2014.

110. Video 20140828_210336: Casualties being treated at the hospital.

111. Video 20140901_113728: A commentator discussing improvised barrel bombs containing toxic chemicals.

112. Video M2U00088: Casualties being treated at the hospital.

113. Video M2U00090: Casualties being treated at the hospital.

114. Video M2U00091: Casualties being treated at the hospital.

115. Video M2U00092: Casualties being treated at the hospital.

116. Video M2U00093: Casualties being treated at the hospital.

117. Video M2U00094: Casualties being treated at the hospital.

118. Video M2U00095: Continuation of the previous video.

119. Video entitled New — New — 2014522_201352: Casualties being treated at the hospital.

120. Video entitled New — New — 20140522_201915: Casualties being treated at the hospital.

121. Video entitled New — New — 20140522_201935: Casualties being treated at the hospital.

122. Video entitled New — New — 20140522_202114: Casualties being treated at the hospital.

123. Video entitled New — New — 20140522_202328: Casualties being treated at the hospital.

124. Video entitled New — New — 20140522_202504: Casualties being treated at the hospital.

125. Video entitled New — New — 20140522_210106: A treating physician discusses casualties after exposure to toxic chemicals.

126. Video entitled New — New — M2U00030: Casualties being treated at the hospital.

127. Video entitled New — Part II of the suffocation cases (in Arabic): Casualties being treated at the hospital.

128. Video entitled New — New — M2U00031: Casualties being treated at the hospital.

129. Video entitled New — New — M2U00032: Casualties being treated at the hospital.

130. Video entitled New — New — 20140522_202328: Casualties being treated at the hospital.

131. Video entitled New — New — 20140522_202504: Casualties being treated at the hospital.

132. Video entitled New — New — 20140522_210106: A treating physician discusses casualties after exposure to toxic chemicals.

133. Video entitled New — New — M2U00030: Voice of the commentator: "22.05.14. Casualties being treated at the hospital.

134. Video entitled New — (Part II of the suffocation cases): Casualties being treated at the hospital.

135. Video entitled New — New — M2U00031: Voice of the commentator: "22.05.14. Casualties being treated at the hospital.

136. Video entitled New — New — M2U00032: Voice of the commentator: "22.05.14. Casualties being treated at the hospital.

137. Video entitled New — New — M2U00033: Continuation of the previous video.

138. Video entitled New — Report on chlorine in Kafr Zita (in Arabic): Treating physician discusses casualties after exposure to toxic chemicals.

139. Video entitled "A physician speaking in English about gases" (in Arabic): A treating physician discusses casualties after exposure to toxic chemicals.

140. Video entitled "Suffocation among children" (in Arabic): A treating physician discusses casualties after exposure to toxic chemicals.

141. Video entitled New — Part II of the suffocation cases (in Arabic): Casualties being treated at the hospital.

142. Video entitled "The moment of the explosion of a toxic gas container" (in Arabic): The video shows the moment of the explosion of a barrel bomb containing toxic chemicals.

TABLE A: LIST OF MATERIAL GATHERED DURING THE INTERVIEW PROCESS

S/N	Date of origin/ (Date available to Mission)	Originator (DCN)	Material Title	No. of pages/items
1.	22.08.14/ (22.08.14)	SAB/FFM3/14/5914/015	Consent Form.	1 page
2.	22.08.14/ (22.08.14)	SAB/FFM3/14/5914/015	Audio recording of interview.	1 micro SD card, 2GB
3.	22.08.14/ (22.08.14)	SAB/FFM3/14/5914/015	Diagrammatic layout of house where incident happened in Talmenes.	3 pages
4.	12.04.14; 18.04.14; 21.04.14; 22.04.14; 23.04.14/ (22.08.14)	SAB/FFM3/14/5914/015	Sampling forms showing collection of blood, urine, tracheal secretions, soil, tree leaves, and bomb fragments.	15 pages
5.	21.04.14/ (22.08.14)	SAB/FFM3/14/5914/015	Medical forms, Bab Al-Hawa hospital, documenting chemical exposure cases.	7 pages
6.	21.04.14/ (22.08.14)	SAB/FFM3/14/5914/015	Medical report on incident of chemical attack on Talmenes, including presenting symptoms, clinical signs, and details of patients.	6 pages
7.	21.04.14/ (22.08.14)	SAB/FFM3/14/5914/015	Various medical examination, investigation, treatment documents from Bab Al-Hawa hospital.	84 pages
8.	21.04.14/ (22.08.14)	SAB/FFM3/14/5914/015	Various videos taken by interviewee from incident of 21.04.14.	42 videos
9.	25.08.14/ (25.08.14)	SAB/FFM3/14/5914/017	Consent Form.	1 page
10.	25.08.14/ (25.08.14)	SAB/FFM3/14/5914/017	Speciality certificate in Orthopaedics, Ministry of Health, SAR, copy.	1 page
11.	25.08.14/ (25.08.14)	SAB/FFM3/14/5914/017	Audio recording of interview.	1 micro SD card, 2GB
12.	25.08.14/ (25.08.14)	SAB/FFM3/14/5914/017	Video recording of interview.	1 micro SD card, 32GB
13.	25.08.14/ (25.08.14)	SAB/FFM3/14/5914/017	Video recording of interview.	1 micro SD card, 32GB
14.	25.08.14/ (25.08.14)	SAB/FFM3/14/5914/017	Handover certificate for evidence.	1 page

S/N	Date of origin/ (Date available to Mission)	Originator (DCN)	Material Title	No. of pages/items
15.	25.08.14/ (25.08.14)	SAB/FFM3/14/5914/018	Consent Form.	1 page
16.	25.08.14/ (25.08.14)	SAB/FFM3/14/5914/018	ID card, front and back, copy.	2 pages
17.	25.08.14/ (25.08.14)	SAB/FFM3/14/5914/018	Doctor Licentiate in Human Medicine, Ministry of Health, SAR, copy.	1 page
18.	25.08.14/ (25.08.14)	SAB/FFM3/14/5914/018	Work certificate at the Faculty of Medicine, Aleppo, issued for of a student in Advanced Studies in General Surgery, by the dean of the Faculty of Medicine, Aleppo, copy.	1 page
19.	25.08.14/ (25.08.14)	SAB/FFM3/14/5914/018	Audio recording of interview.	1 micro SD card, 2GB
20.	25.08.14/ (25.08.14)	SAB/FFM3/14/5914/018	Video recording of interview.	1 micro SD card, 32GB
21.	26.08.14/ (26.08.14)	SAB/FFM3/14/5914/019	Consent Form.	1 page
22.	26.08.14/ (26.08.14)	SAB/FFM3/14/5914/019	ID card, front and back, copy.	2 pages
23.	26.08.14/ (26.08.14)	SAB/FFM3/14/5914/019	Drawings of bomb, house layout where bomb impacted and approach streets to impact place, Talmenes.	2 pages
24.	26.08.14/ (26.08.14)	SAB/FFM3/14/5914/019	Autopsy certificate.	1 page
25.	26.08.14/ (26.08.14)	SAB/FFM3/14/5914/019	Map of Talmenes marked in presence of mission showing impact point.	1 page
26.	26.08.14/ (26.08.14)	SAB/FFM3/14/5914/019	Audio recording of interview.	1 micro SD card, 2GB
27.	26.08.14/ (26.08.14)	SAB/FFM3/14/5914/019	Video recording of interview.	1 micro SD card, 32GB
28.	26.08.14/ (26.08.14)	SAB/FFM3/14/5914/020	Consent form.	1 page
29.	26.08.14/ (26.08.14)	SAB/FFM3/14/5914/020	ID card, front and back, copy.	2 pages
30.	26.08.14/ (26.08.14)	SAB/FFM3/14/5914/020	Audio recording of interview.	1 micro SD card, 2GB
31.	26.08.14/ (26.08.14)	SAB/FFM3/14/5914/020	Video recording of interview.	1 micro SD card, 32GB
32.	26.08.14/ (26.08.14)	SAB/FFM3/14/5914/021	Consent form.	1 page

S/N	Date of origin/ (Date available to Mission)	Originator (DCN)	Material Title	No. of pages/items
33.	26.08.14/ (26.08.14)	SAB/FFM3/14/5914/021	A copy of birth records.	1 page
34.	26.08.14/ (26.08.14)	SAB/FFM3/14/5914/021	Audio recording of interview.	1 micro SD card, 2GB
35.	26.08.14/ (26.08.14)	SAB/FFM3/14/5914/021	Video recording of interview.	1 micro SD card, 32GB
36.	26.08.14/ (26.08.14)	SAB/FFM3/14/5914/022	Consent form.	1 page
37.	26.08.14/ (26.08.14)	SAB/FFM3/14/5914/022	ID card, front and back, copy.	2 pages
38.	26.08.14/ (26.08.14)	SAB/FFM3/14/5914/022	Drawings of house layout where bomb impacted and approach streets to impact place, Talmenes.	2 pages
39.	26.08.14/ (26.08.14)	SAB/FFM3/14/5914/022	Audio recording of interview.	1 micro SD card, 2GB
40.	26.08.14/ (26.08.14)	SAB/FFM3/14/5914/022	Video recording of interview.	1 micro SD card, 32GB
41.	26.08.14/ (26.08.14)	SAB/FFM3/14/5914/023	Consent form.	1 page
42.	26.08.14/ (26.08.14)	SAB/FFM3/14/5914/023	A copy of birth records.	1 page
43.	26.08.14/ (26.08.14)	SAB/FFM3/14/5914/023	Audio recording of interview.	1 micro SD card, 2GB
44.	26.08.14/ (26.08.14)	SAB/FFM3/14/5914/023	Video recording of interview.	1 micro SD card, 32GB
45.	26.08.14/ (26.08.14)	SAB/FFM3/14/5914/024	Consent form.	1 page
46.	26.08.14/ (26.08.14)	SAB/FFM3/14/5914/024	ID card, front and back, copy.	2 pages
47.	26.08.14/ (26.08.14)	SAB/FFM3/14/5914/024	Drawings of house with neighbourhood where bomb impacted, Talmenes.	1 page
48.	26.08.14/ (26.08.14)	SAB/FFM3/14/5914/024	Audio recording of interview.	1 micro SD card, 2GB
49.	26.08.14/ (26.08.14)	SAB/FFM3/14/5914/024	Video recording of interview.	1 micro SD card, 32GB
50.	27.08.14/ (27.08.14)	SAB/FFM3/14/5914/026	Consent form.	1 page
51.	27.08.14/ (27.08.14)	SAB/FFM3/14/5914/026	ID card, front and back, copy.	2 pages
52.	27.08.14/ (27.08.14)	SAB/FFM3/14/5914/026	Drawings of layout of Talmenes hospital; distances from referral hospitals.	2 pages

S/N	Date of origin/ (Date available to Mission)	Originator (DCN)	Material Title	No. of pages/items
53.	27.08.14/ (27.08.14)	SAB/FFM3/14/5914/026	Map of Talmenes marked in presence of mission showing impact points and important buildings including hospital.	1 page
54.	27.08.14/ (27.08.14)	SAB/FFM3/14/5914/026	Audio recording of interview.	1 micro SD card, 2GB
55.	27.08.14/ (27.08.14)	SAB/FFM3/14/5914/026	Video recording of interview.	1 micro SD card, 32GB
56.	27.08.14/ (27.08.14)	SAB/FFM3/14/5914/027	Consent form.	1 page
57.	27.08.14/ (27.08.14)	SAB/FFM3/14/5914/027	ID card, front and back, copy.	2 pages
58.	27.08.14/ (27.08.14)	SAB/FFM3/14/5914/027	Drawings depicting backyard of house where bomb impacted; location of house in village and escape roads, Talmenes.	3 pages
59.	27.08.14/ (27.08.14)	SAB/FFM3/14/5914/027	Audio recording of interview.	1 micro SD card, 2GB
60.	27.08.14/ (27.08.14)	SAB/FFM3/14/5914/027	Video recording of interview.	1 micro SD card, 32GB
61.	27.08.14/ (27.08.14)	SAB/FFM3/14/5914/028	Consent form.	1 page
62.	27.08.14/ (27.08.14)	SAB/FFM3/14/5914/028	ID card (front and back) — copy	2 pages
63.	27.08.14/ (27.08.14)	SAB/FFM3/14/5914/028	Drawing of locations of neighbourhood village hospitals in relation to Talmenes.	1 page
64.	27.08.14/ (27.08.14)	SAB/FFM3/14/5914/028	Various videos showing places and people of Talmenes after the toxic chemical attack.	16 videos
65.	27.08.14/ (27.08.14)	SAB/FFM3/14/5914/028	Document chronologically listing some toxic chemical attacks on the village.	2 pages
66.	27.08.14/ (27.08.14)	SAB/FFM3/14/5914/028	Audio recording of interview.	1 micro SD card, 2GB
67.	27.08.14/ (27.08.14)	SAB/FFM3/14/5914/028	Video recording of interview.	1 micro SD card, 32GB
68.	27.08.14/ (27.08.14)	SAB/FFM3/14/5914/029	Consent form.	1 page
69.	27.08.14/ (27.08.14)	SAB/FFM3/14/5914/029	ID card, front and back, copy.	2 pages

S/N	Date of origin/ (Date available to Mission)	Originator (DCN)	Material Title	No. of pages/items
70.	27.08.14/ (27.08.14)	SAB/FFM3/14/5914/029	Drawing of layout of house; important village landmarks; relative location of two houses where bombs impacted, Talmenes.	1 page
71.	27.08.14/ (27.08.14)	SAB/FFM3/14/5914/029	Audio recording of interview.	1 micro SD card, 2GB
72.	27.08.14/ (27.08.14)	SAB/FFM3/14/5914/029	Video recording of interview.	1 micro SD card, 32GB
73.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/031	Consent form.	1 page
74.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/031	ID card, front and back, copy.	2 pages
75.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/031	Doctor Licentiate in Human Medicine, Ministry of Health, SAR, copy.	1 page
76.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/031	Audio recording of interview.	1 micro SD card, 2GB
77.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/031	Video recording of interview.	1 micro SD card, 32GB
78.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/032	Consent form.	1 page
79.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/032	ID card, front, copy.	1 page
80.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/032	Drawing of layout of house and impact point, Al Tamanah.	1 page
81.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/032	Audio recording of interview.	1 micro SD card, 2GB
82.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/032	Video recording of interview.	1 micro SD card, 32GB
83.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/033	Consent form.	1 page
84.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/033	ID card, front, copy.	1 page
85.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/033	Drawing of unexploded barrel bomb containing toxic chemicals.	1 page
86.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/033	Audio recording of interview.	1 micro SD card, 2GB
87.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/033	Video recording of interview.	1 micro SD card, 32GB
88.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/034	Consent form.	1 page

S/N	Date of origin/ (Date available to Mission)	Originator (DCN)	Material Title	No. of pages/items
89.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/034	ID card, front and back, copy.	2 pages
90.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/034	Speciality certificate in internal medicine, Ministry of Health SAR, copy.	1 page
91.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/034	Authorisation to practice medicine in SAR, Ministry of Health SAR, copy.	1 page
92.	12.04.14; 18.04.14; 29.04.14; 22.05.14; 27.05.14/ (30.08.14)	SAB/FFM3/14/5914/034	Videos from incidents of 12, 18, 29.04.14 and 22.05.14, Al Tamanah.	32 videos
93.	12.04.14; 18.04.14; 29.04.14; 22.05.14; 27.05.14/ (30.08.14)	SAB/FFM3/14/5914/034	Photographs from incident of 12, 18, 29.04.14 and 22.05.14.	20 photographs
94.	May.14/ (30.08.14)	SAB/FFM3/14/5914/034	Documents, electronic copies of report on various attacks on Al Tamanah.	3 documents (1 + 2 + 3 pages)
95.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/034	Audio recording of interview.	1 micro SD card, 2GB
96.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/034	Video recording of interview.	1 micro SD card, 32GB
97.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/036	Consent form.	1 page
98.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/036	Passport ID, SAR, copy.	1 page
99.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/036	Drawing of barrel bomb and protective mask.	2 pages
100.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/036	Audio recording of interview.	1 micro SD card, 2GB
101.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/036	Video recording of interview.	1 micro SD card, 32GB
102.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/038	Consent form.	1 page
103.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/038	ID card, front and back, copy.	1 page
104.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/038	Audio recording of interview.	1 micro SD card, 2GB
105.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/038	Video recording of interview.	1 micro SD card, 32GB

S/N	Date of origin/ (Date available to Mission)	Originator (DCN)	Material Title	No. of pages/items
106.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/039	Consent form.	1 page
107.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/039	ID card, front and back, copy.	2 pages
108.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/039	Autopsy certificate.	1 page
109.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/039	Drawing of barrel bomb.	1 page
110.	April-May.14/ (30.08.14)	SAB/FFM3/14/5914/039	Videos from incident of April-May 2014, Al Tamanah.	22 videos
111.	May.14/ (30.08.14)	SAB/FFM3/14/5914/039	Photographs of unexploded barrel bomb.	5 photos
112.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/039	Audio recording of interview.	1 micro SD card, 2GB
113.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/039	Video recording of interview.	1 micro SD card, 32GB
114.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/040	Consent form.	1 page
115.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/040	ID card, front and back, copy.	1 page
116.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/040	Drawing of impact point with distances.	1 page
117.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/040	Audio recording of interview.	1 micro SD card, 2GB
118.	30.08.14/ (30.08.14)	SAB/FFM3/14/5914/040	Video recording of interview.	1 micro SD card, 32GB
119.	31.08.14/ (31.08.14)	SAB/FFM3/14/5914/041	Consent form.	1 page
120.	31.08.14/ (31.08.14)	SAB/FFM3/14/5914/041	ID card, front and back, copy.	2 pages
121.	31.08.14/ (31.08.14)	SAB/FFM3/14/5914/041	Licentiate in Nursing, Allepo University, SAR, copy.	1 page
122.	31.08.14/ (31.08.14)	SAB/FFM3/14/5914/041	Audio recording of interview.	1 micro SD card, 2GB
123.	31.08.14/ (31.08.14)	SAB/FFM3/14/5914/041	Video recording of interview.	1 micro SD card, 32GB
124.	31.08.14/ (31.08.14)	SAB/FFM3/14/5914/042	Consent form.	1 page
125.	31.08.14/ (31.08.14)	SAB/FFM3/14/5914/042	ID card, front and back, copy.	2 pages
126.	31.08.14/ (31.08.14)	SAB/FFM3/14/5914/042	Drawing showing the location of nearby hospitals.	1 page

S/N	Date of origin/ (Date available to Mission)	Originator (DCN)	Material Title	No. of pages/items
127.	31.08.14/ (31.08.14)	SAB/FFM3/14/5914/042	Audio recording of interview.	1 micro SD card, 2GB
128.	31.08.14/ (31.08.14)	SAB/FFM3/14/5914/042	Video recording of interview.	1 micro SD card, 32GB
129.	31.08.14/ (31.08.14)	SAB/FFM3/14/5914/043	Consent form.	1 page
130.	31.08.14/ (31.08.14)	SAB/FFM3/14/5914/043	ID card, front, copy.	1 page
131.	31.08.14/ (31.08.14)	SAB/FFM3/14/5914/043	Drawings depicting different places of impact of barrel bombs with toxic chemicals and escape roads from village, Al Tamanah.	5 pages
132.	31.08.14/ (31.08.14)	SAB/FFM3/14/5914/043	Audio recording of interview.	1 micro SD card, 2GB
133.	31.08.14/ (31.08.14)	SAB/FFM3/14/5914/043	Video recording of interview.	1 micro SD card, 32GB
134.	31.08.14/ (31.08.14)	SAB/FFM3/14/5914/044	Consent form.	1 page
135.	31.08.14/ (31.08.14)	SAB/FFM3/14/5914/044	ID card, front and back, copy.	2 pages
136.	31.08.14/ (31.08.14)	SAB/FFM3/14/5914/044	Drawings depicting different places of impact of barrel bombs with toxic chemicals, Al Tamanah.	1 page
137.	31.08.14/ (31.08.14)	SAB/FFM3/14/5914/044	Audio recording of interview.	1 micro SD card, 2GB
138.	31.08.14/ (31.08.14)	SAB/FFM3/14/5914/044	Video recording of interview.	1 micro SD card, 32GB
139.	31.08.14/ (31.08.14)	SAB/FFM3/14/5914/045	Consent form.	1 page
140.	31.08.14/ (31.08.14)	SAB/FFM3/14/5914/045	Copy of civil status records.	1 page
141.	31.08.14/ (31.08.14)	SAB/FFM3/14/5914/045	Audio recording of interview.	1 micro SD card, 2GB
142.	31.08.14/ (31.08.14)	SAB/FFM3/14/5914/045	Video recording of interview.	1 micro SD card, 32GB
143.	31.08.14/ (31.08.14)	SAB/FFM3/14/5914/046	Consent form.	1 page
144.	31.08.14/ (31.08.14)	SAB/FFM3/14/5914/046	ID card, front and back, copy.	1 page
145.	31.08.14/ (31.08.14)	SAB/FFM3/14/5914/046	Audio recording of interview.	1 micro SD card, 2GB
146.	31.08.14/ (31.08.14)	SAB/FFM3/14/5914/046	Video recording of interview.	1 micro SD card, 32GB

S/N	Date of origin/ (Date available to Mission)	Originator (DCN)	Material Title	No. of pages/items
147.	02.09.14/ (02.09.14)	SAB/FFM3/14/5914/048	Consent form.	1 page
148.	02.09.14/ (02.09.14)	SAB/FFM3/14/5914/048	ID Passport, SAR, copy.	1 page
149.	02.09.14/ (02.09.14)	SAB/FFM3/14/5914/048	Certificate of Specialisation in General Surgery, Ministry of Health, SAR, copy.	1 page
150.	02.09.14/ (02.09.14)	SAB/FFM3/14/5914/048	Employment contract with Kafr Zita hospital.	2 pages
151.	02.09.14/ (02.09.14)	SAB/FFM3/14/5914/048	Videos from incidents, Kafr Zita.	32 videos
152.	02.09.14/ (02.09.14)	SAB/FFM3/14/5914/048	2 reports by the Hama Health Directorate about toxic chemical attacks on Kafr Zita.	4 pages
153.	02.09.14/ (02.09.14)	SAB/FFM3/14/5914/048	Patient treatment records.	140 pages
154.	02.09.14/ (02.09.14)	SAB/FFM3/14/5914/048	Audio recording of interview.	1 micro SD card, 2GB
155.	02.09.14/ (02.09.14)	SAB/FFM3/14/5914/048	Video recording of interview.	1 micro SD card, 32GB
156.	02.09.14/ (02.09.14)	SAB/FFM3/14/5914/049	Consent form.	1 page
157.	02.09.14/ (02.09.14)	SAB/FFM3/14/5914/049	ID Passport, SAR, copy.	1 page
158.	02.09.14/ (02.09.14)	SAB/FFM3/14/5914/049	Certificate of Specialisation in Internal Medicine, Ministry of Health, SAR, copy	1 page
159.	02.09.14/ (02.09.14)	SAB/FFM3/14/5914/049	Employment contract with Kafr Zita hospital.	2 pages
160.	02.09.14/ (02.09.14)	SAB/FFM3/14/5914/049	Hand written details listing attacks.	1 page
161.	02.09.14/ (02.09.14)	SAB/FFM3/14/5914/049	Audio recording of interview.	1 micro SD card, 2GB
162.	02.09.14/ (02.09.14)	SAB/FFM3/14/5914/049	Video recording of interview.	1 micro SD card, 32GB
163.	03.09.14/ (03.09.14)	SAB/FFM3/14/5914/051	Consent form.	1 page
164.	03.09.14/ (03.09.14)	SAB/FFM3/14/5914/051	ID card, front and back, copy.	1 page
165.	03.09.14/ (03.09.14)	SAB/FFM3/14/5914/051	Audio recording of interview.	1 micro SD card, 2GB

S/N	Date of origin/ (Date available to Mission)	Originator (DCN)	Material Title	No. of pages/items
166.	03.09.14/ (03.09.14)	SAB/FFM3/14/5914/051	Video recording of interview.	1 micro SD card, 32GB
167.	03.09.14/ (03.09.14)	SAB/FFM3/14/5914/052	Consent form.	1 page
168.	03.09.14/ (03.09.14)	SAB/FFM3/14/5914/052	ID card, front and back, copy.	1 page
169.	03.09.14/ (03.09.14)	SAB/FFM3/14/5914/052	Drawing of improvised barrel bomb.	1 page
170.	03.09.14/ (03.09.14)	SAB/FFM3/14/5914/052	Drawing depicting patient transfer across border.	1 page
171.	03.09.14/ (03.09.14)	SAB/FFM3/14/5914/052	Audio recording of interview.	1 micro SD card, 2GB
172.	03.09.14/ (03.09.14)	SAB/FFM3/14/5914/052	Video recording of interview.	1 micro SD card, 32GB
173.	03.09.14/ (03.09.14)	SAB/FFM3/14/5914/053	Unsigned consent, as the individual was minor and unaccompanied by guardian.	1 page
174.	03.09.14/ (03.09.14)	SAB/FFM3/14/5914/053	Audio recording of interview, individuals statement only.	1 micro SD card, 2GB
175.	03.09.14/ (03.09.14)	SAB/FFM3/14/5914/053	Video recording of interview, couple of minutes only until individual was identified as minor.	1 micro SD card, 32GB
176.	03.09.14/ (03.09.14)	SAB/FFM3/14/5914/054	Consent form.	1 page
177.	03.09.14/ (03.09.14)	SAB/FFM3/14/5914/054	ID card, front and back, copy.	1 page
178.	03.09.14/ (03.09.14)	SAB/FFM3/14/5914/054	Audio recording of interview.	1 micro SD card, 2GB
179.	03.09.14/ (03.09.14)	SAB/FFM3/14/5914/055	Consent form.	1 page
180.	03.09.14/ (03.09.14)	SAB/FFM3/14/5914/055	ID card, front and back, copy.	1 page
181.	03.09.14/ (03.09.14)	SAB/FFM3/14/5914/055	Audio recording of interview.	1 micro SD card, 2GB
182.	03.09.14/ (03.09.14)	SAB/FFM3/14/5914/056	Consent form.	1 page
183.	03.09.14/ (03.09.14)	SAB/FFM3/14/5914/056	ID card, front and back, copy.	1 page
184.	03.09.14/ (03.09.14)	SAB/FFM3/14/5914/056	Audio recording of interview.	1 micro SD card, 2GB
185.	03.09.14/ (03.09.14)	SAB/FFM3/14/5914/056	Video recording of interview.	1 micro SD card, 32GB

S/N	Date of origin/ (Date available to Mission)	Originator (DCN)	Material Title	No. of pages/items
186.	03.09.14/ (03.09.14)	SAB/FFM3/14/5914/057	Consent form.	1 page
187.	03.09.14/ (03.09.14)	SAB/FFM3/14/5914/057	ID card, front and back, copy.	1 page
188.	03.09.14/ (03.09.14)	SAB/FFM3/14/5914/057	Audio recording of interview.	1 micro SD card, 2GB
189.	03.09.14/ (03.09.14)	SAB/FFM3/14/5914/057	Video recording of interview.	1 micro SD card, 32GB

TABLE B: LIST OF MATERIAL PRODUCED BY THE TEAM MEMBERS OF THE MISSION

S/N	Date of origin	Originator (DCN)	Material Title	No. of pages USED/Total
1.	21.08.14	SAB/FFM3/14/5914/010	Inspection notebook	25/25 pages
2.	21.08.14	SAB/FFM3/14/5914/011	Inspection notebook	00/25 pages
3.	21.08.14	SAB/FFM3/14/5914/012	Inspection notebook	25/25 pages
4.	21.08.14	SAB/FFM3/14/5914/013	Inspection notebook	25/25 pages
5.	21.08.14	SAB/FFM3/14/5914/014	Inspection notebook	25/25 pages
6.	25.08.14	SAB/FFM3/14/5914/016	Inspection notebook	25/25 pages
7.	26.08.14	SAB/FFM3/14/5914/025	Inspection notebook	25/25 pages
8.	27.08.14	SAB/FFM3/14/5914/030	Inspection notebook	25/25 pages
9.	30.08.14	SAB/FFM3/14/5914/035	Inspection notebook	23/25 pages
10.	30.08.14	SAB/FFM3/14/5914/037	Inspection notebook	25/25 pages
11.	02.09.14	SAB/FFM3/14/5914/047	Inspection notebook	25/25 pages
12.	02.09.14	SAB/FFM3/14/5914/050	Inspection notebook	25/25 pages
13.	03.09.14	SAB/FFM3/14/5914/058	Inspection notebook	02/25 pages

TABLE C: CHRONOLOGICAL SEQUENCE OF ADMISSION TO HOSPITAL, KAFR ZITA

Name	Gender/Age	Address	Date of First Aid	Diagnosis	Treatment Provided
1104-P1	Male	Morek	11.04.14	Difficulty breathing+ coughing	I.V fluids
1104-P2	Male	Latamnah	11.04.14	Intoxication by toxic gas	Symptomatic treatment
1104-P3	Male	Morek	11.04.14	Toxic gases, contusion in the head	Symptomatic treatment+ resuscitation (This patient died)
1104-P4	Male	Kafr Zita	11.04.14	Sensation of suffocation, difficulty breathing and vomiting	Symptomatic treatment
1104-P5	Female	Kafr Zita	11.04.14	Intoxication by chlorine gas+ acute respiratory distress	Saline isotonic I.V fluids, oxygenation, sprays. The patient was transferred outside of SAR
1104-P6	Male	Kafr Zita	11.04.14	Suffocation, difficulty breathing, cyanosis	Symptomatic treatment
1104-P7	Female	Hama	11.04.14	Intoxication by chlorine gas. Same symptoms	Same treatment plan (IV treatment, oxygen, spray)
1104-P8	Female	Morek	11.04.14	Intoxication symptoms, coughing, cyanosis, low blood pressure	Symptomatic treatment (condition improved)
1104-P9	Female	Morek	11.04.14	Severe coughing, difficulty breathing, low pressure, crepitations, cyanosis	I.V fluids
1104-P10	Male	Kafr Zita	11.04.14	Intoxication by chlorine gas (severe coughing, fatigue, cold perspiration, cyanosis, haemoptysis)	I.V fluids. The patient was transferred outside of SAR
1104-P11	Female	Kafr Zita	11.04.14	Severe coughing, haemoptysis and acute respiratory distress	The patient was transferred to an advanced medical centre

1104-P12	Male	Kafr Zita	11.04.14	Intoxication by chlorine gas	I.V fluids + oxygen
1204-P1	Male	Bsirin	12.04.14 @ 22:00 hrs	Suffocation by chlorine gas	I.V treatment+ oxygen+ spray
1204-P2	Male	–	12.04.14	Suffocation by chlorine gas	Symptomatic treatment
1204-P3	Female	Kafr Zita	12.04.14	Intoxication by chlorine gas, dry coughing, difficulty breathing, low blood pressure	I.V fluids
1204-P4	Male	–	12.04.14	Suffocation by chlorine gas. Same symptoms	Same treatment plan (oxygen and spray)
1204-P5	Female	Kafr Zita	12.04.14	Illegible	I.V treatment
1404-P1	Male 20 years	Halfaya	14.04.14 @ 23:00 hrs	Intoxication by chlorine gas. Same symptoms	Same treatment plan
1404-P2	Male 18 years	Halfaya	14.04.14 @ 23:00 hrs	Intoxication by chlorine gas. Same symptoms	Same treatment plan (I.V fluids, oxygen, spray)
1404-P3	Male 19 years	Halfaya	14.04.14 @ 23:00 hrs	Intoxication with chlorine gas Same symptoms	Same treatment plan (I.V fluids, oxygen, spray)
1404-P4	Male 21 years	Halfaya	14.04.14 @ 23:00 hrs	Intoxication with chlorine gas Same symptoms	Same treatment plan
1604-P1	Male 40 years	Kafr Zita	16.04.14	Intoxication by chlorine gas. Dry cough + crepitations + difficulty breathing	oxygen+ sprays
1604-P2	Male	Shid	16.04.14	Intoxication by chlorine gas. Same symptoms	Same treatment plan (oxygen+ sprays)
1604-P3	Male	Shid	16.04.14	Intoxication with chlorine gas. Same symptoms	Same treatment plan (oxygen+ sprays)
1604-P4	Female 21 years	Kafr Zita	16.04.14	Severe coughing due to exposure to chlorine gas, irritability, tight chest	I.V fluids
1604-P5	Female 24 years	Kafr Zita	16.04.14	Intoxication by chlorine gas. Same symptoms	Same treatment plan

1804-P1	Male	Kafr Zita	18.04.14 at 22:50 hrs	Intoxication by chlorine. Same symptoms (coughing and difficulty breathing)	Same treatment plan (CORTISONE + Salbutamoul + Spray)
1804-P2	Male	Kafr Zita	18.04.14	Intoxication by chlorine	Same treatment plan
1804-P3	Male 7 months	Kafr Zita	18.04.14	Intoxication by chlorine	Same treatment plan
1804-P4		Kafr Zita	18.04.14 at 24:00 hrs	Toxic gases (chlorine). Same symptoms	Same treatment plan
1804-P5	Female	Karnaz	18.04.14	Intoxication by chlorine gas. Same symptoms	Same treatment plan
1804-P6	Male	Kafr Zita	18.04.14 at 22:50 hrs	Intoxication by chlorine gas. Same symptoms (Severe cough+ difficulty breathing)	Sprays+Salbutamoul+Dexon
1804-P7	Male	Kafr Zita	18 April 2014	Intoxication with chlorine gas. Same symptoms	Same treatment plan
1804-P8	Female 25 years	Morek	18.04.14 at 24:00 hrs	Intoxication by chlorine gas. Same symptoms	Same treatment plan
1804-P9	Male	Kafr Zita	18.04.14 at 22:50 hrs	Intoxication by chlorine gas. Same symptoms	Same treatment
1804-P10	Female	Kafr Zita	18.04.14 at 22:50 hrs	Delivery of baby and intoxication by chlorine. Same symptoms	Same treatment plan
1804-P11	Female	Morek	18.04.14 at 22:50 hrs	Intoxication by chlorine gas. Same symptoms	Same treatment plan
1804-P12	Male	Kafr Zita	18.04.14 at 22:50 hrs	Intoxication by chlorine gas. Same symptoms	Same treatment plan
1804-P13	Male	Kafr Zita	18.04.14	Intoxication by chlorine gas. Same symptoms	Same treatment plan
1804-P14	Male	Kafr Zita	18.04.14	Intoxication by chlorine gas. Same symptoms	Same treatment plan

1804-P15	Male	Morek	18.04.14	Intoxication by chlorine gas. Same symptoms	Same treatment plan
1804-P16	Male	Latamnah	18.04.14	Intoxication by chlorine gas. Same symptoms	Same treatment plan
1804-P17	Male	Morek	18.04.14	Intoxication by chlorine gas. Same symptoms	Same treatment plan
1804-P18	Male	Khattab	18.04.14	Intoxication by chlorine gas. Same symptoms	Same treatment plan
1804-P19	Female	Latamnah	18.04.14	Intoxication by chlorine gas. Same symptoms	Same treatment plan
1804-P20	Male	Kafr Zita	18.04.14	Intoxication by chlorine gas. Same symptoms	Same treatment plan
1804-P21	Female	Tawina	18.04.14	Intoxication by chlorine gas. Same symptoms	Same treatment plan
1804-P22	Female	Kafr Zita	18.04.14	Intoxication by chlorine gas. Same symptoms	Same treatment plan
1804-P23	Male	Kafr Zita	18.04.14	Intoxication by chlorine gas. Same symptoms	Same treatment plan
1804-P24	Female	Kafr Zita	18.04.14	Intoxication by chlorine gas. Same symptoms	Same treatment plan
1804-P25	Male	Kafr Zita	18.04.14	Intoxication by chlorine gas. Same symptoms	Same treatment plan
1804-P26	Female 19 years	Latamnah	18.04.14	Intoxication by chlorine gas. Same symptoms	Same treatment plan
1804-P27	Female 27 years	Latamnah	18.04.14 at 24:00 hrs	Intoxication by chlorine gas. Same symptoms	Same treatment plan (sprays+ oxygen)
1804-P28	Male	Hayaline	18.04.14	Intoxication by chlorine gas. Same symptoms	Same treatment plan
1804-P29	Male	Kafr Zita	18.04.14	Intoxication by chlorine gas. Same symptoms	Same treatment plan

1804-P30	Female	Al-Tawina	18.04.14	Intoxication by chlorine gas. Same symptoms	Same treatment plan
1804-P31	Male	–	18.04.14 at 23:00 hrs	Intoxication by chlorine gas. Same symptoms (severe coughing)	Same treatment plan
1804-P32	Female	Kafr Zita	18.04.14	Intoxication by chlorine gas. Same symptoms	Same treatment plan
1804-P33	Female	Al-Zakat	18.04.14	Intoxication by chlorine gas. Same symptoms	Same treatment plan
1804-P34	Female 24 years	Kafr Zita	18.04.14	Intoxication by chlorine gas. Same symptoms	Same treatment plan
1804-P35	Female	Kafr Zita	18.04.14	Intoxication by chlorine gas. Same symptoms	Same treatment plan
1905-P1	Male	Kafr Zita	19.05.14 @20:00 hrs	Intoxication by chlorine gas. Coarse crepitations	Sprays+ Kortifint+ Salbutamol
1905-P2	Male	Kafr Zita	19.05.14	Intoxication by chlorine gas.	I.V fluids
2105-P1	Female	Kafr Zita	21.05.14	Intoxication by chlorine gas. Same symptoms	
2105-P2	Female	Kafr Zita	21.05.14	Intoxication by chlorine gas (dry coughing+ difficulty breathing)	I.V fluids
2105-P3	Male 30 years	Kafr Zita	21.05.14	Severe cough due to exposure to chlorine gas	Sprays (salbutamol)
2105-P4	Male	Kafr Zita	21.05.14 at 20:00 hrs	Intoxication by chlorine	I.V fluids
2205-P1	Male 57 years	Kafr Zita	22.05.14	Intoxication by chlorine gas; Coughing, coarse crepitations	Sprays
2205-P2	Female 18 years	Morek	22.05.14 at 20:00 hrs	Intoxication by chlorine gas	O2+ Spray
2205-P3	Female 26 years	Kafr Zita	22.05.14 at 20:00 hrs	Intoxication by chlorine gas	O2+ Spray
2205-P4	Male	Kafr Zita	22.05.14 at 20:00 hrs	Intoxication by chlorine gas	O2+ Spray
2205-P5	Female 12 years	Khattab	22.05.14 at 20:00 hrs	Intoxication by chlorine gas	O2+ Spray

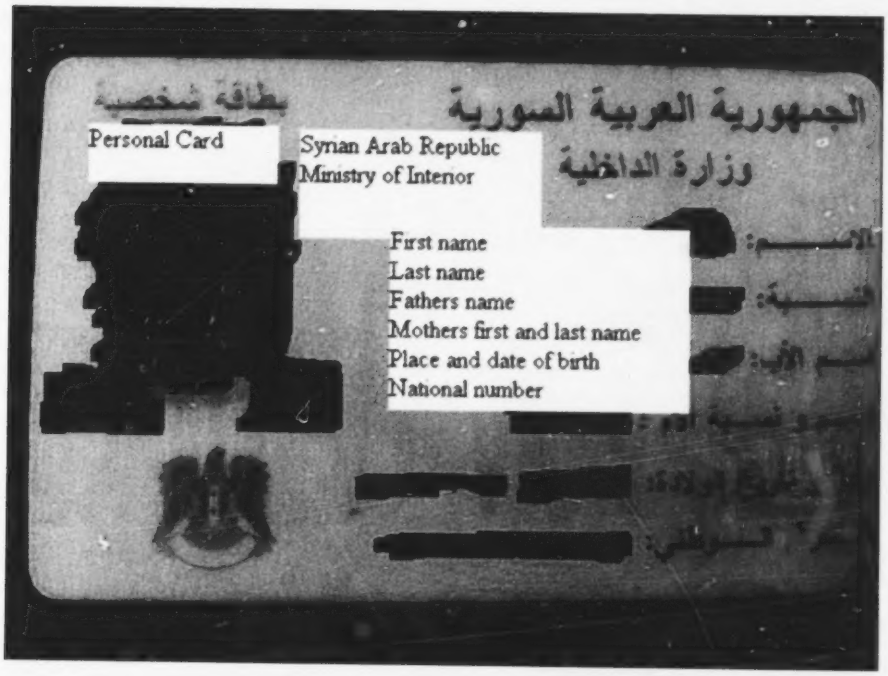
2205-P6	Male 22 years	Kafr Zita	22.05.14 at 20:00 hrs	Intoxication by chlorine gas	O2+ Spray
2205-P7	Male 22 years	Kafr Zita	22.05.14 at 20:00 hrs	Intoxication by chlorine gas	O2+ Spray
2205-P8	Male 44 years	Kafr Houd	22.05.14 at 20:00 hrs	Intoxication by chlorine gas	O2+ Spray
2205-P9	Male 25 years	Kafr Zita	22.05.14 at 20:00 hrs	Intoxication by chlorine gas	O2+ Spray
2205-P10	Female 17 years	Kafr Zita	22.05.14	Intoxication by chlorine gas	O2+ Spray+ Monitoring
2205-P11	Female 18 years	Latamnah	22.05.14	Intoxication by chlorine gas	O2+ Spray+ Monitoring
2205-P12	Male 21 years	Kafr Zita	22.05.14	Intoxication by chlorine gas	O2+ Spray+ Monitoring
2205-P13	Male 21 years	Kafr Zita	22.05.14	Intoxication by chlorine gas	O2+ Spray+ Monitoring
2205-P14	Male 23 years	Kafr Zita	22.05.14	Intoxication by chlorine gas	O2+ Spray+ Monitoring
2205-P15	Female 40 years	Kafr Zita	22.05.14	Intoxication by chlorine gas	O2+ Spray+ Monitoring
2205-P16	Male 17 years	Kafr Zita	22.05.14	Intoxication by chlorine gas	O2+ Spray+ Monitoring
2205-P17	Female 18 years	Latamnah	22.05.14	Intoxication by chlorine gas	O2+ Spray+ Monitoring
2205-P18	Male 21 years	Kafr Zita	22.05.14	Intoxication by chlorine gas	O2+ Spray+ Monitoring
2205-P19	Female 8 years	Kafr Zita	22.05.14	Intoxication by chlorine gas	O2+ Spray+ Monitoring
2205-P20	Female 10 years	Kafr Zita	22.05.14	Intoxication by chlorine gas	O2+ Spray+ Monitoring
2205-P21	Female	Kafr Houd	22.05.14	Intoxication by chlorine gas	O2+ Spray+ Monitoring
2205-P22	Female	Kafr Zita	22.05.14	Intoxication by chlorine gas	O2+ Spray+ Monitoring
2205-P23	Female 29 years	Kafr Zita	22.05.14 at 20:00 hrs	Intoxication by chlorine gas	O2+ Spray+ Monitoring
2205-P24	Male 14 years	Kafr Zita	22.05.14 at 20:00 hrs	Intoxication by chlorine gas	O2+ Spray+ Monitoring
2205-P25	Male 21 years	Karnaz	22.05.14 at 20:00 hrs	Intoxication by chlorine gas	O2+ Spray+ Monitoring
2205-P26	Female	Kafr Houd	22.05.14 at 20:00 hrs	Intoxication by chlorine gas	O2+ Spray+ Monitoring
2205-P27	Female 9 years	Kafr Zita	22.05.14 at 20:00 hrs	Intoxication by chlorine gas	I.V liquids+ sprays
2205-P28	Female 40 years	Kafr Zita	22.05.14 at 20:00 hrs	Intoxication by chlorine gas	
2205-P29	Male 22 years	Kafr Zita	22.05.14 at 20:00 hrs	Intoxication by chlorine gas	O2+ Spray+ Monitoring
2205-P30	Male 24 years	Kafr Zita	22.05.14 at 20:00 hrs	Intoxication by chlorine gas	O2+ Spray+ Monitoring
2205-P31	Female	Kafr Zita	22.05.14 at 20:00 hrs	Intoxication by chlorine gas	O2+ Spray+ Monitoring

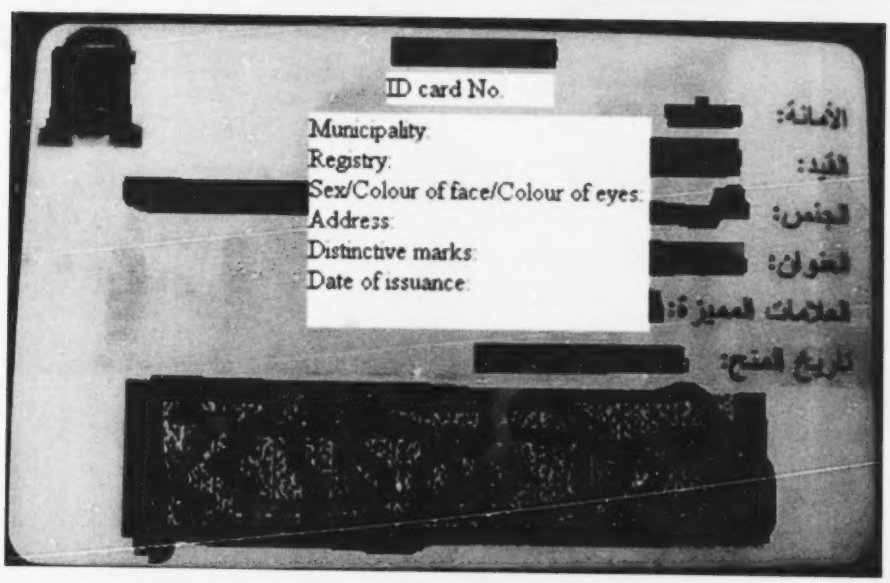
2205-P32	Male	Kafr Zita	22.05.14 at 20:00 hrs	Intoxication by chlorine gas	–
2205-P33	Female 20 years	Khattab	22.05.14 at 20:00 hrs	Intoxication by chlorine gas	O2+ Spray
2205-P34	Male 20 years	Khattab	22.05.14 at 20:00 hrs	Intoxication by chlorine gas	O2+ Spray
2205-P35	Female 9 years	Kafr Zita	22.05.14 at 20:00 hrs	Intoxication by chlorine gas	I.V fluids (salbutamol)
2205-P36	Male	Morek	22.05.14 at 10:00 hrs	Injury in the middle finger	Suturing+ bandage
2205-P37	Female 5 years	Kafr Zita	22.05.14	Intoxication by chlorine gas	O2+ Spray+ Monitoring
2205-P38	Female 45 years	Kafr Zita	22.05.14 at 20:00 hrs	Intoxication by chlorine gas	O2+ Spray+ Monitoring
2905-P1	Female, 18 years	Latamnah	29 May 2014 at 23h20	Intoxication with chlorine gas.	Same treatment
2905-P2	Male	Latamnah	29 May 2014 at 23h20	Intoxication with chlorine gas. Same symptoms	Same treatment
2905-P3	Male, 17 years	–	29 May 2014 at 23h20	Intoxication with chlorine gas. Same clinical symptoms	Same treatment
2905-P4	Female, 19 years	Latamnah	29 May 2014 at 23h20	Intoxication with chlorine gas. Same clinical symptoms	Same treatment
2905-P5	Male, 16 years	Latamnah	29 May 2014 at 23h20	Intoxication with chlorine gas. Same clinical symptoms	Same treatment
2905-P6	Female, 22 years	Kafr Zita	29 May 2014 at 24h	Intoxication with chlorine gas. Same clinical symptoms	Same treatment (admitted to intensive care)
2905-P7	Female, 40 years	Latamnah	29 May 2014 at 23h20	Intoxication with chlorine gas. Same clinical symptoms	Same treatment
2905-P8	Female, 26 years	Latamnah	29 May 2014 at 24h	Intoxication with chlorine gas. Same clinical symptoms	Same treatment
2905-P9	Female, 22 years	–	29 May 2014 at 23h20	Intoxication with chlorine gas. Same clinical symptoms	Same treatment
2905-P10	Male, 25 years	Latamnah	29 May 2014 at 23h20	Intoxication with chlorine gas. Same clinical symptoms	Same treatment
2905-P11	Male, 02 years	Latamnah	29 May 2014 at 23h20	Intoxication with chlorine gas. Same clinical symptoms	Same treatment

2905-P12	Female, 05 years	–	29 May 2014 at 23h20	Intoxication with chlorine gas. Same clinical symptoms	Same treatment
2905-P13	Male, 22 years	Latamnah	29 May 2014 at 23h20	Intoxication with chlorine gas. Same clinical symptoms	Same treatment
2905-P14	Male, 28 years	Latamnah	29 May 2014 at 23h20	Intoxication with chlorine gas. Same clinical symptoms	Same treatment
2905-P15	Male, 16 years	Latamnah	29 May 2014 at 23h20	Intoxication with chlorine gas. Same clinical symptoms	Same treatment
2905-P16	Male, 24 years	Latamnah	29 May 2014 at 23h20	Intoxication with chlorine gas. Same clinical symptoms	Same treatment
2905-P17	Female years	Latamnah	29 May 2014 at 23h20	Intoxication with chlorine gas. Same clinical symptoms	Same treatment

Appendix 1

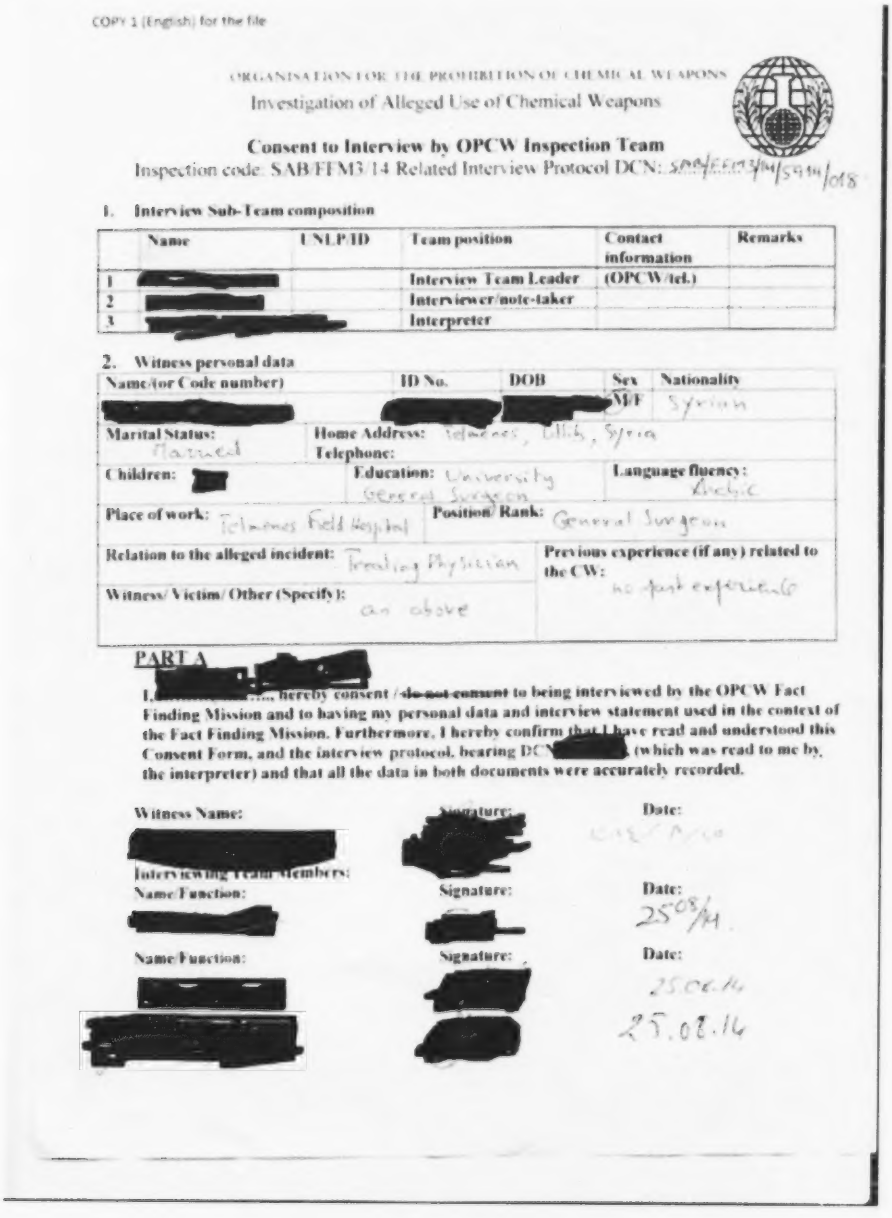
Example of the front and back of an identification card issued by the Government of the Syrian Arab Republic to one of the interviewees. The identity of all interviewees was checked and copies of identity documents were made by the Mission.





Appendix 2

Example of the consent form (copy 1 in English) signed by all participants in the interview process. The signed form (copy 2 in Arabic) was handed over to the interviewees.



COPY 1 (English) for the file

ORGANISATION FOR THE PROHIBITION OF CHEMICAL WEAPONS

Investigation of Alleged Use of Chemical Weapons

Consent to Interview by OPCW Inspection Team

Inspection code: SAB/FFM3/14 Related Interview Protocol DCN: SAB/FFM3/INT/5414/2014

1. Interview Sub-Team composition

	Name	UNLP/ID	Team position	Contact information	Remarks
1	[redacted]		Interview Team Leader	(OPCW/tel.)	
2	[redacted]		Interviewer/note-taker		
3	[redacted]		Interpreter		

2. Witness personal data

Name/(or Code number)	ID No.	DOB	Sex	Nationality
[redacted]	[redacted]	[redacted]	M/F	Syrian

Marital Status: Married	**Home Address:** Telmenes, Idlib, Syria **Telephone:**	
Children: [redacted]	**Education:** University Degree Surgeon	**Language fluency:** Arabic
Place of work: Telmenes Field Hospital	**Position/ Rank:** General Surgeon	
Relation to the alleged incident: Treating Physician	**Previous experience (if any) related to the CW:** no past experience	
Witness/ Victim/ Other (Specify): as above		

PART A

I, [redacted], hereby consent / ~~do not consent~~ to being interviewed by the OPCW Fact Finding Mission and to having my personal data and interview statement used in the context of the Fact Finding Mission. Furthermore, I hereby confirm that I have read and understood this Consent Form, and the interview protocol, bearing DCN [redacted] (which was read to me by the interpreter) and that all the data in both documents were accurately recorded.

Witness Name: [redacted] **Signature:** [redacted] **Date:** 25/08/14

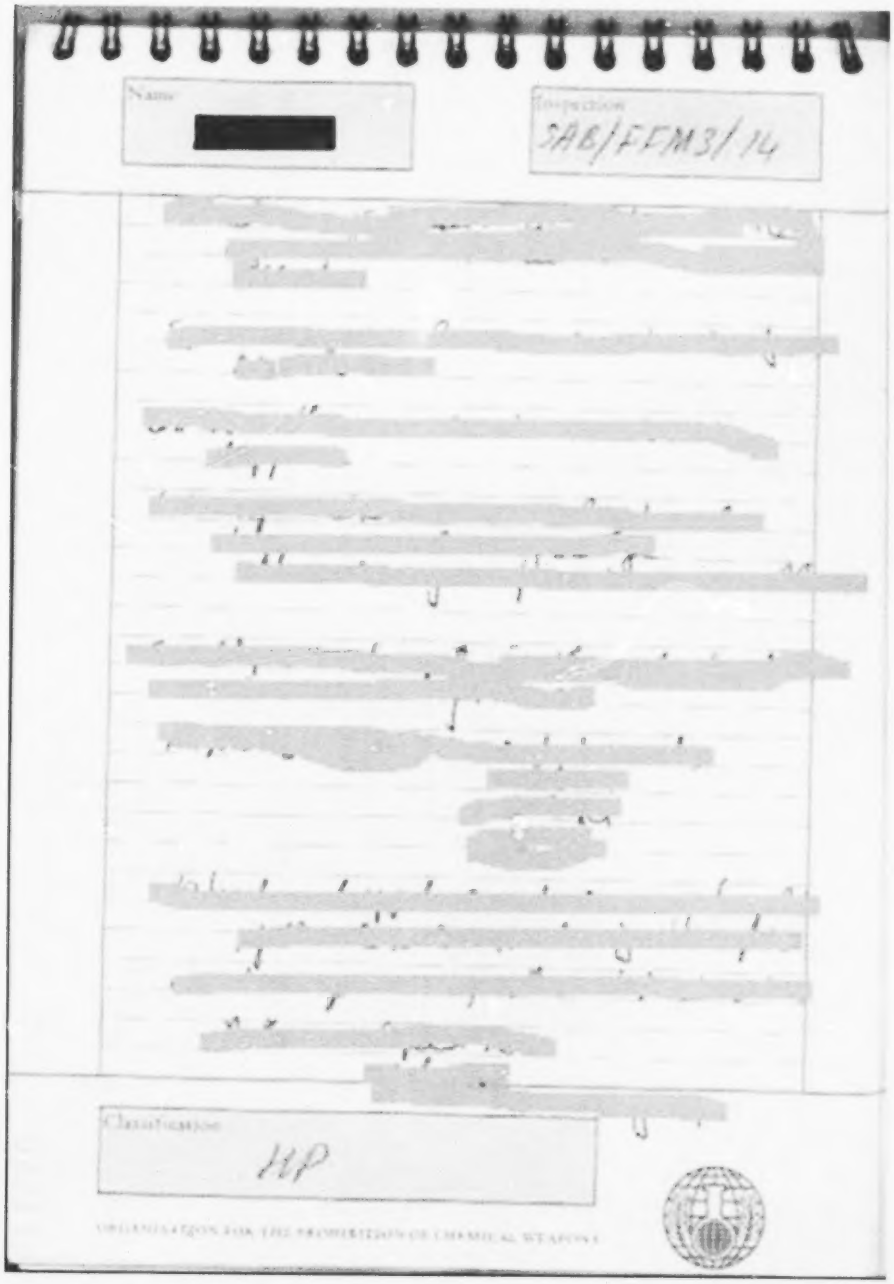
Interviewing Team Members:

Name/Function: [redacted] **Signature:** [redacted] **Date:** 25/08/14

Name/Function: [redacted] **Signature:** [redacted] **Date:** 25.08.14

Appendix 3

Example of a single page from an OPCW inspection notebook. Only official OPCW equipment was used while collecting and analysing data and drafting this report.

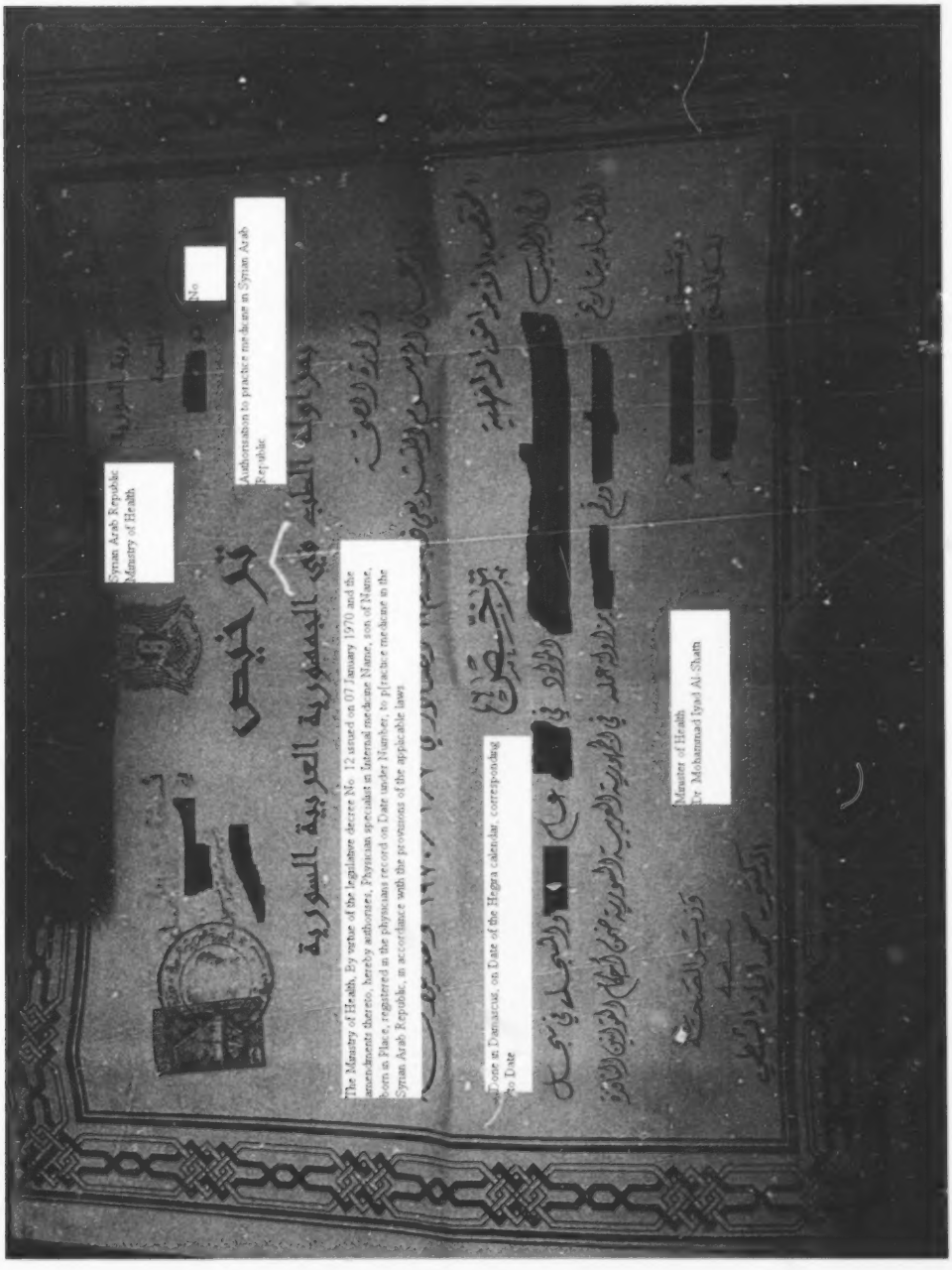


Appendix 4

Map showing the relative locations of Talmenes, Al Tamanah, and Kafr Zita, the places where chlorine was allegedly used as a weapon.

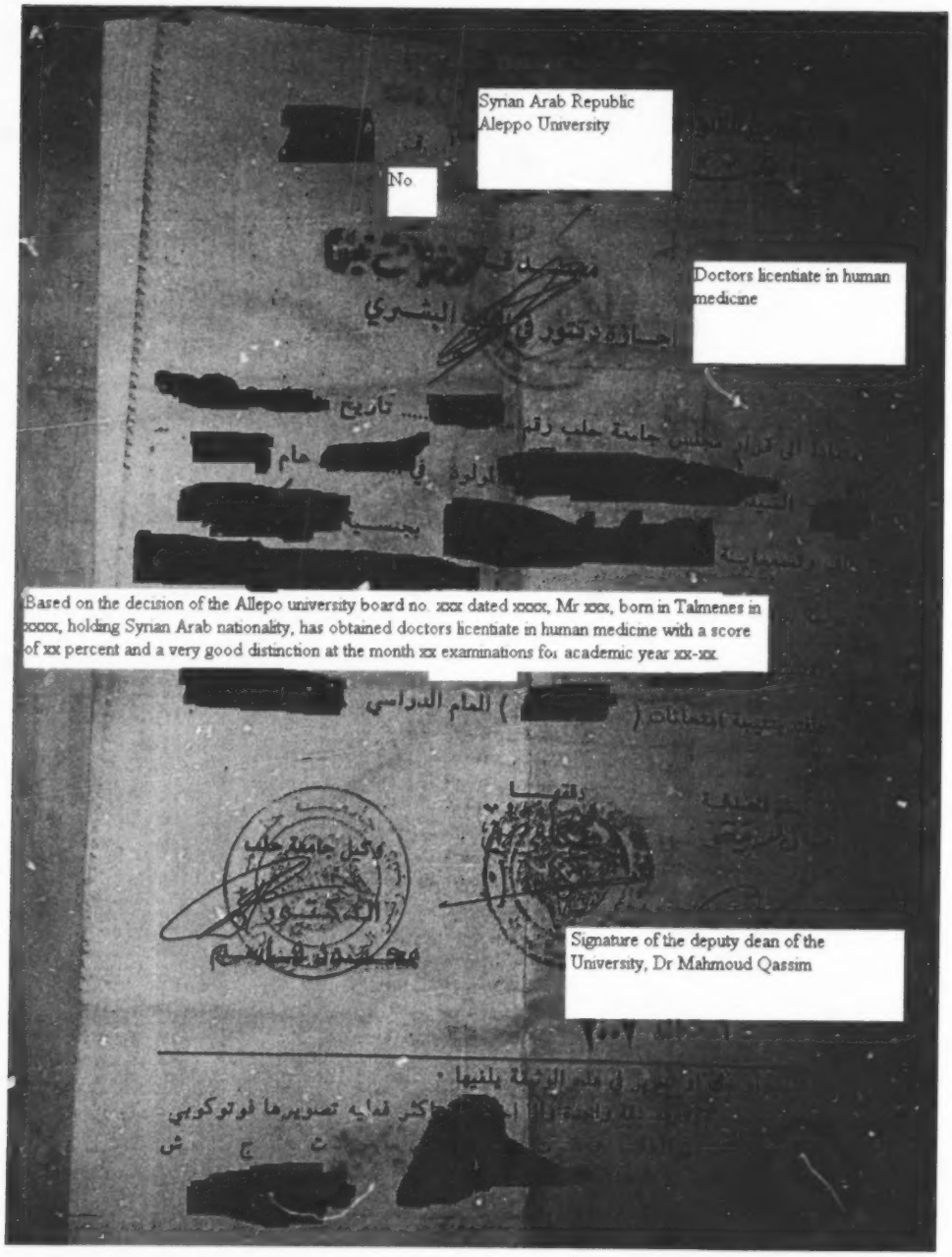
Appendix 5

Example of an authorisation certificate to practice medicine in the Syrian Arab Republic, provided by a treating physician and checked by the Mission.


Syrian Arab Republic
Ministry of Health
No
Authorisation to practice medicine in Syrian Arab Republic
The Ministry of Health, By virtue of the legislative decree No. 12 issued on 07 January 1970 and the amendments thereto, hereby authorises, Physician specialist in Internal medicine Name, son of Name, born in Place, registered in the physicians record on Date under Number, to practice medicine in the Syrian Arab Republic, in accordance with the provisions of the applicable laws
Done in Damascus, on Date of the Hegra calendar, corresponding to Date
Minister of Health
Dr. Mohammad Iyad Al Shatti

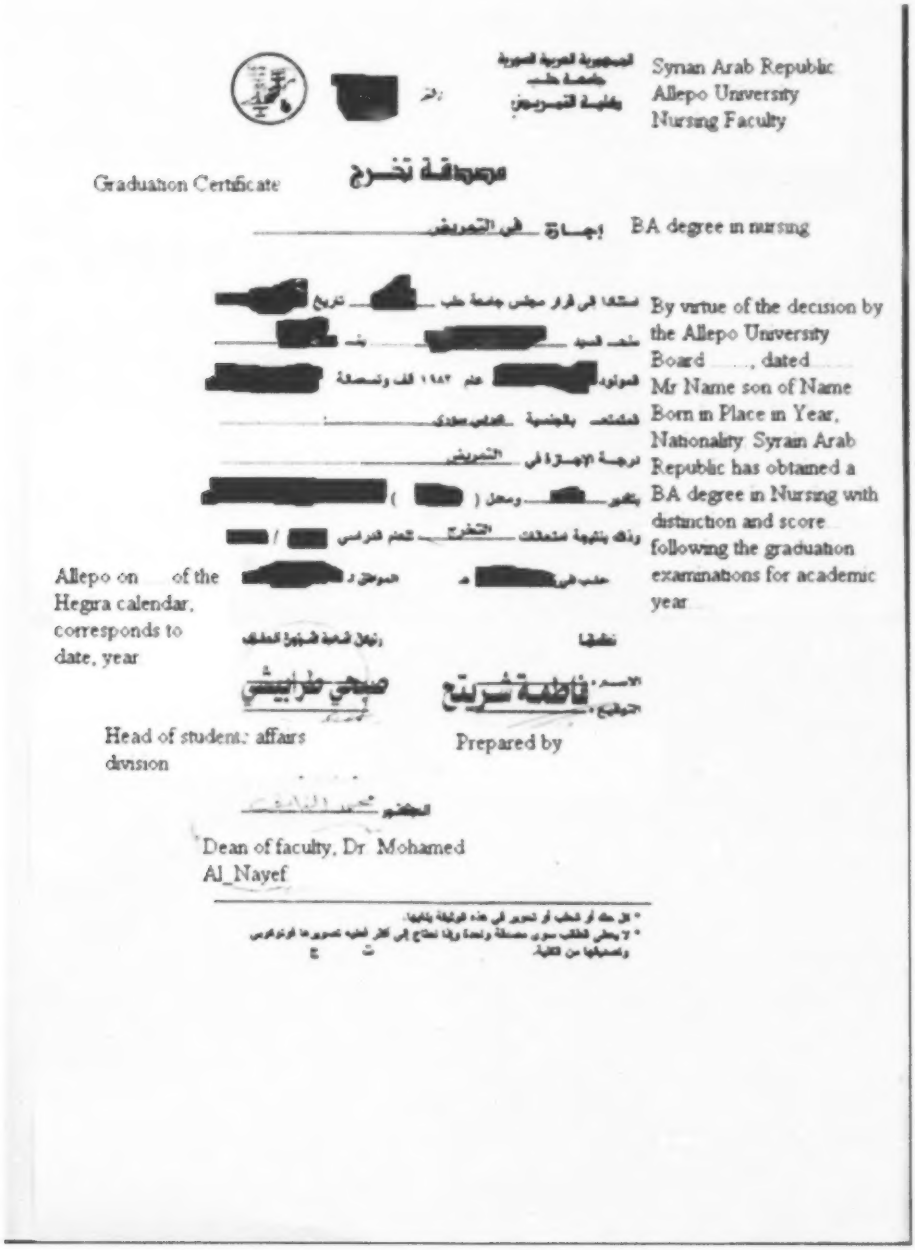
Appendix 6

Example of doctors licentiate in human medicine issued by the Syrian Arab Republic and provided to the Mission by a treating physician.


Syrian Arab Republic
Aleppo University
No
Doctors licentiate in human medicine
Based on the decision of the Allepo university board no xxx dated xxxx, Mr xxx, born in Talmenes in xxxx, holding Syrian Arab nationality, has obtained doctors licentiate in human medicine with a score of xx percent and a very good distinction at the month xx examinations for academic year xx-xx
Signature of the deputy dean of the University, Dr Mahmoud Qassim

Appendix 7

Example of a B.A. Degree in Nursing from the Syrian Arab Republic, presented by one of interviewees.



الجمهورية العربية السورية
جامعة حلب
كلية التمريض

Syrian Arab Republic
Allepo University
Nursing Faculty

Graduation Certificate

شهادة تخرج

إجازة في التمريض

BA degree in nursing

استنادا الى قرار مجلس جامعة حلب تاريخ
منح السيد بن
المولود عام ١٩٨٢ في وتسمية
الحامل للجنسية الجمهورية العربية السورية
درجة الإجازة في التمريض
بتقدير ومحل ( )
وذلك بنتيجة امتحانات التخرج للعام الدراسي /

By virtue of the decision by the Allepo University Board , dated
Mr Name son of Name
Born in Place in Year,
Nationality Syrian Arab Republic has obtained a BA degree in Nursing with distinction and score
following the graduation examinations for academic year

حلب في الموافق لـ هـ

Allepo on of the Hegra calendar, corresponds to date, year

وكيل شعبة شؤون الطلاب

صبحي طرابيشي

Head of students' affairs division

تحقيقا

الاسم: فاطمة شربتج

Prepared by

العميد

Dean of faculty, Dr Mohamed Al_Nayef

* إن حمله أو الطلب أو تحرير في هذه الوثيقة يلغيها.
* لا يعطى الطالب سوى نسخة واحدة وإذا احتاج إلى أكثر فعليه تصويرها في دوائر الدرس وتصديقها من الكلية.

Appendix 8

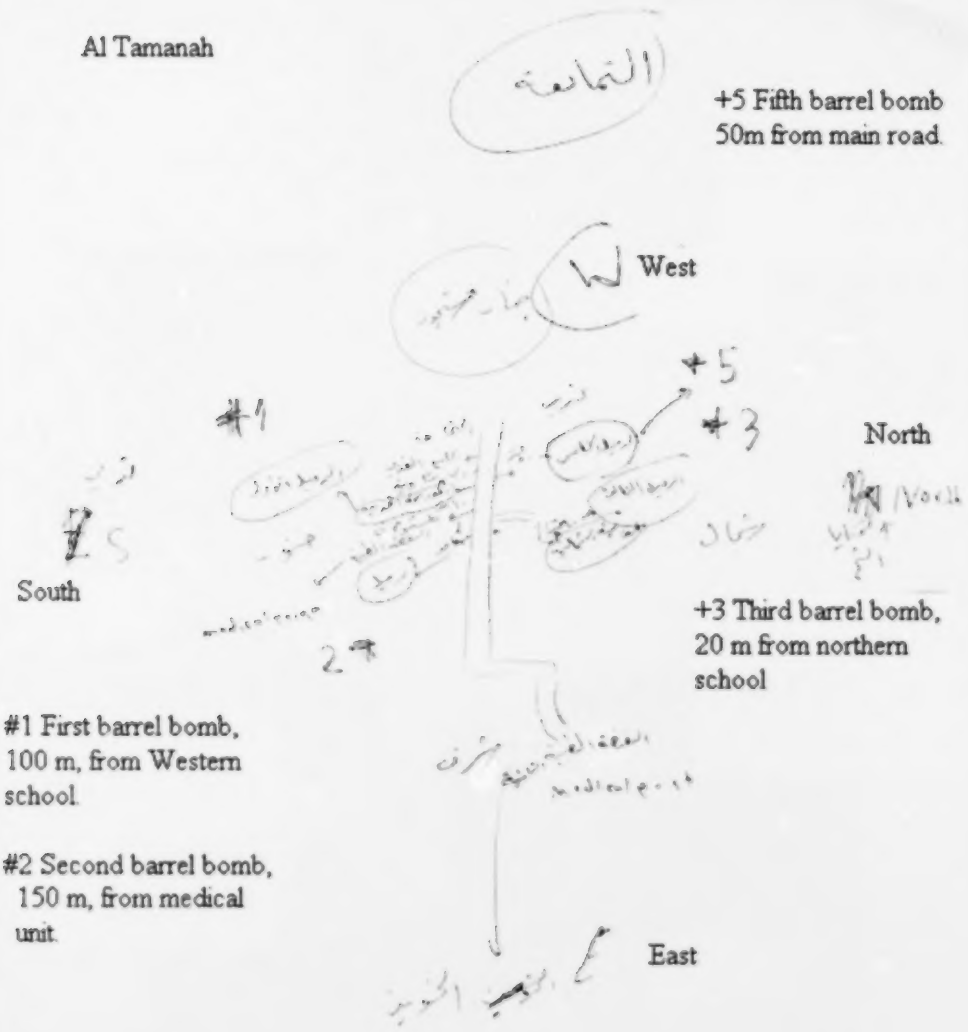
Sketch by an interviewee of the neighbourhood around the Big Mosque in Talmenes, where the barrel bombs impacted on 21 April 2014.

Appendix 9

Sketch drawn by an interviewee of the point of impact of the second barrel bomb in Talmenes village and the accompanying destruction. The picture below is a screen-grab from a video of the impact point provided by one interviewee. This picture provides the same view as the sketch above but as visualised from the side of the street. It also shows the collapsed wall.

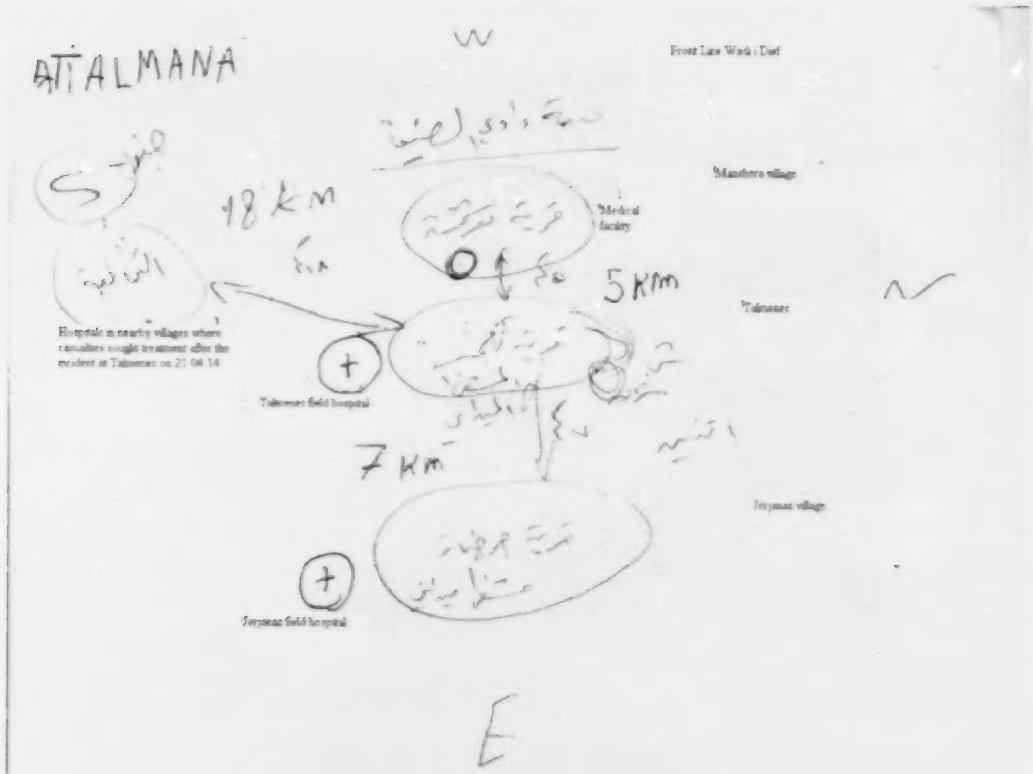
Appendix 10

Sketch by an interviewee of the impact points of barrel bombs in Al Tamanah village.



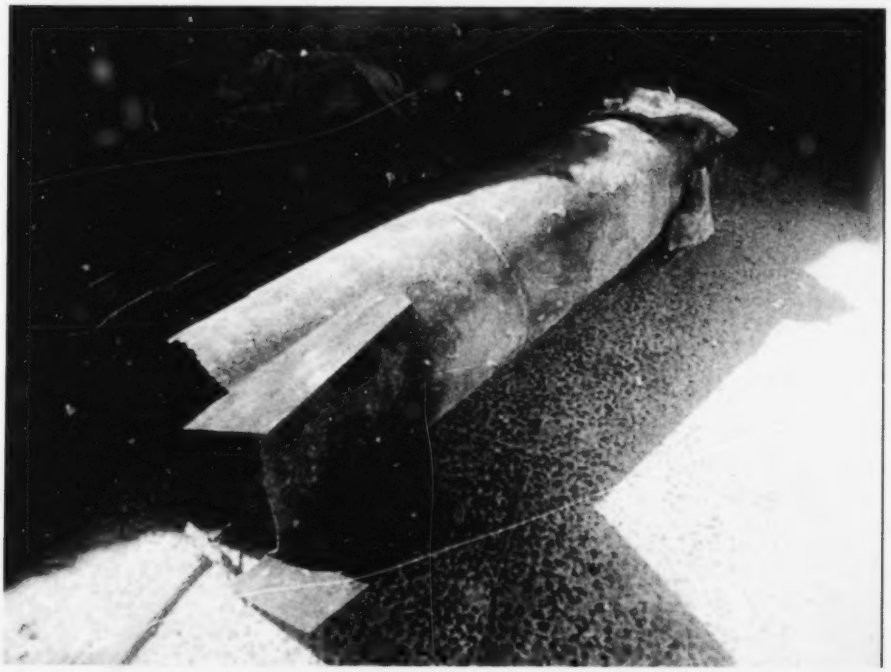
Appendix 11

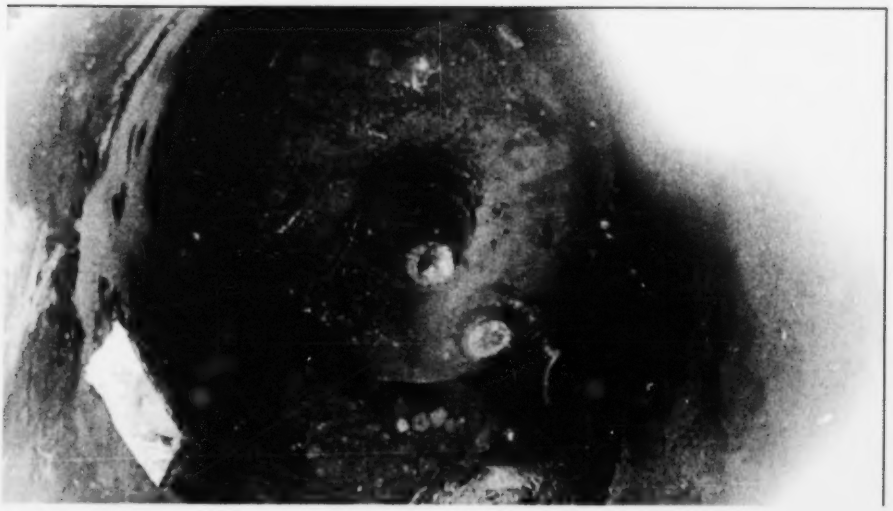
Sketch by an interviewee representing villages near Talmenes that have medical clinics and their distances.



Appendix 12

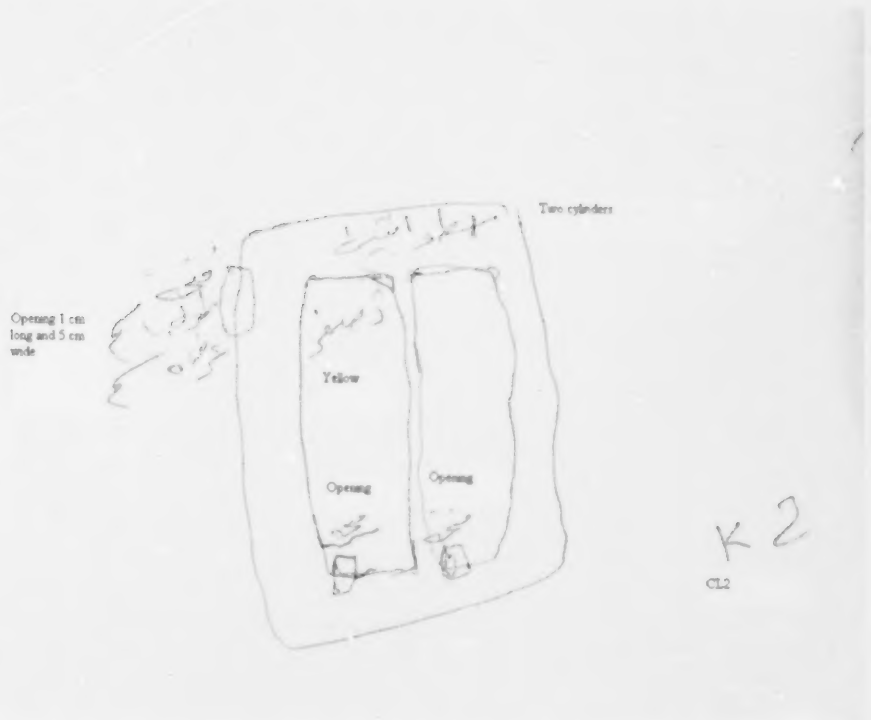
A dropped barrel bomb that failed to function, as the point of impact was in soft soil. The nose-end of the bomb has been blunted on impact. The second photograph is the cross-section view of same bomb, showing the toxic chemical cylinder. A blue detonation (fuse) wire is also visible.





Appendix 13

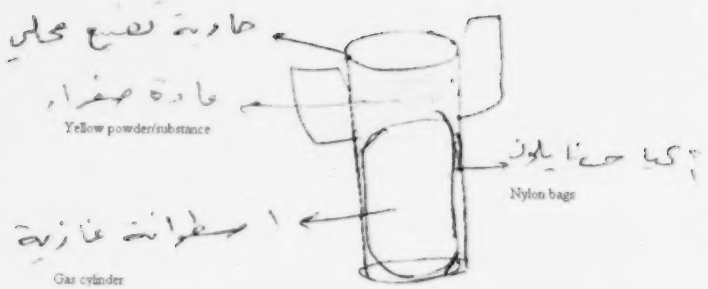
Sketches by interviewees of an improvised barrel bomb. The first has two cylinders inside, one yellow and bearing the markings "CL2". The openings (vents) according to interviewee produce the whistling sound, as mentioned in the main body of the report. The second sketch shows the improvised nature of the barrel bomb. The last sketch depicts the length and possible functioning mechanism.

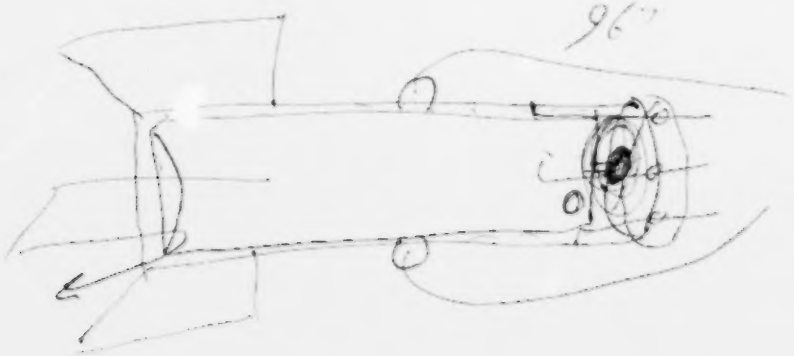


H cl

H cl

Locally made container





Appendix 14

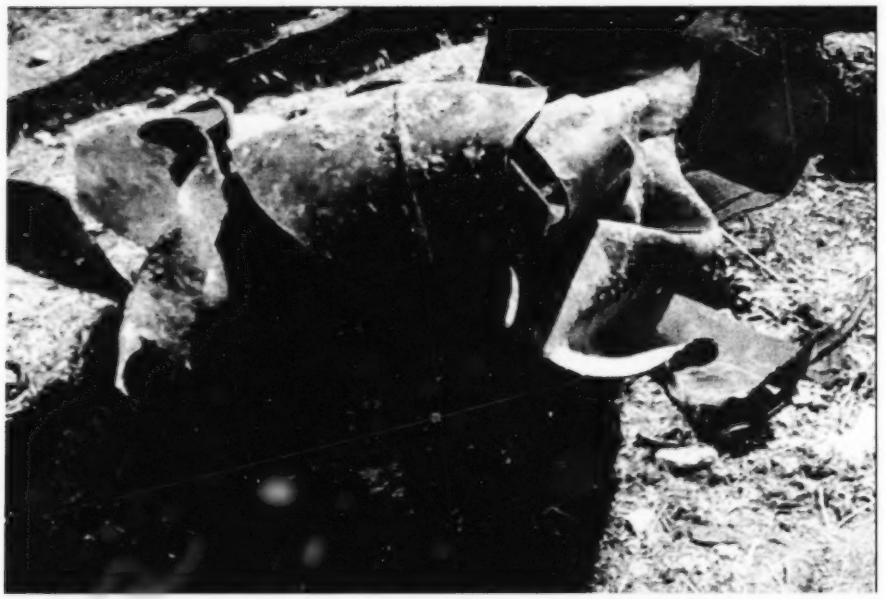
Various markings on the toxic chemical cylinder contained inside the barrel bombs can be seen in these screen-grabs from a video provided by an interviewee.

Appendix 15

View of the base of an outer barrel reinforced with a cross-sectional support. The toxic chemical cylinder can be seen inside.

Appendix 16

A barrel bomb that exploded (opened up rather than splintered). The toxic chemical cylinder can be seen inside the barrel bomb in the second picture.

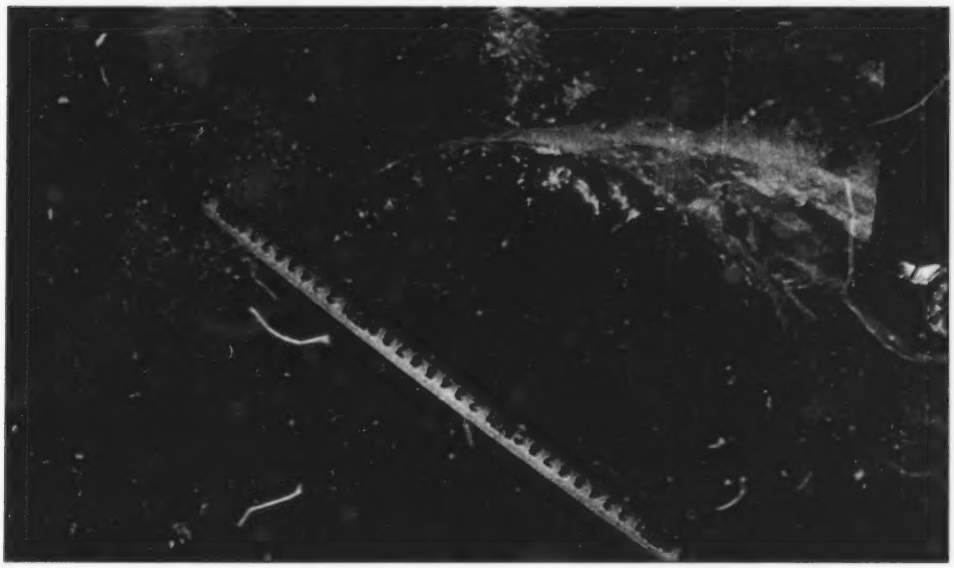


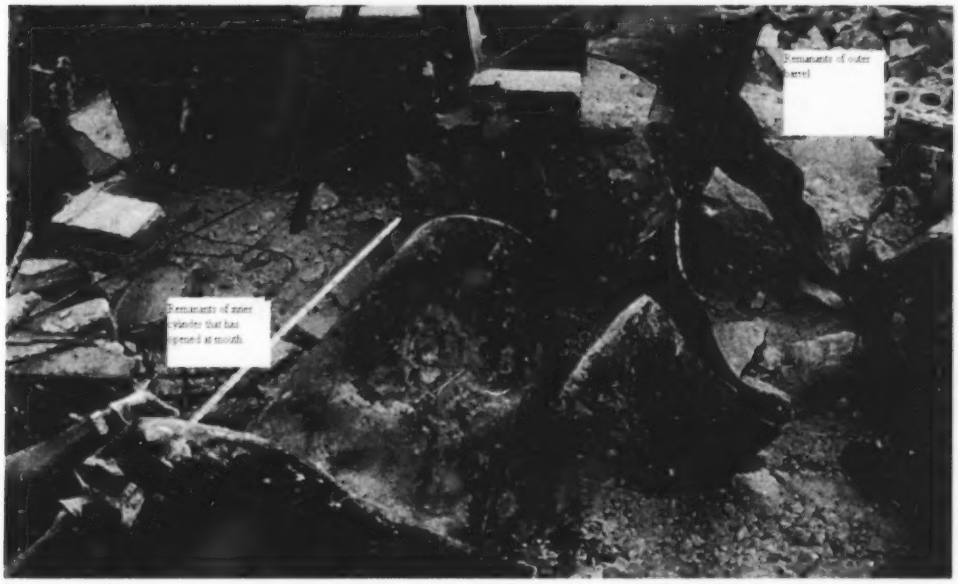
Appendix 17

The remnants of a toxic chemical cylinder. Note that the cylinder has ruptured at the nose end.

Appendix 18

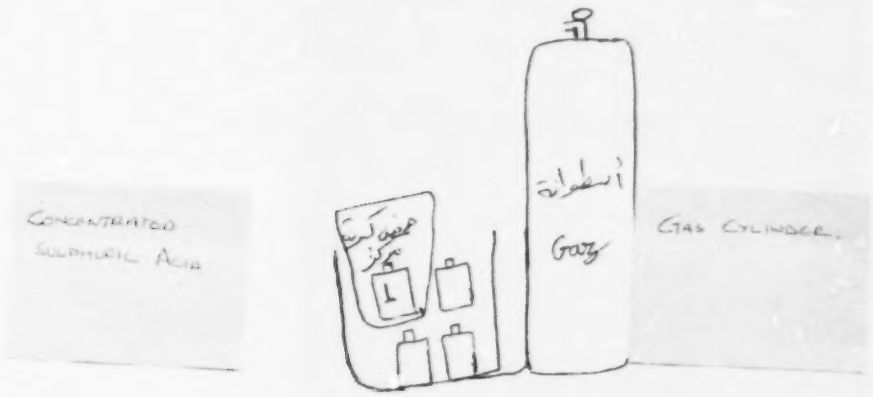
The view of the measurement of an inner chlorine cylinder from a barrel bomb that functioned. The second picture shows the remnants of the outer barrel and inner cylinder as they lay after functioning as designed.





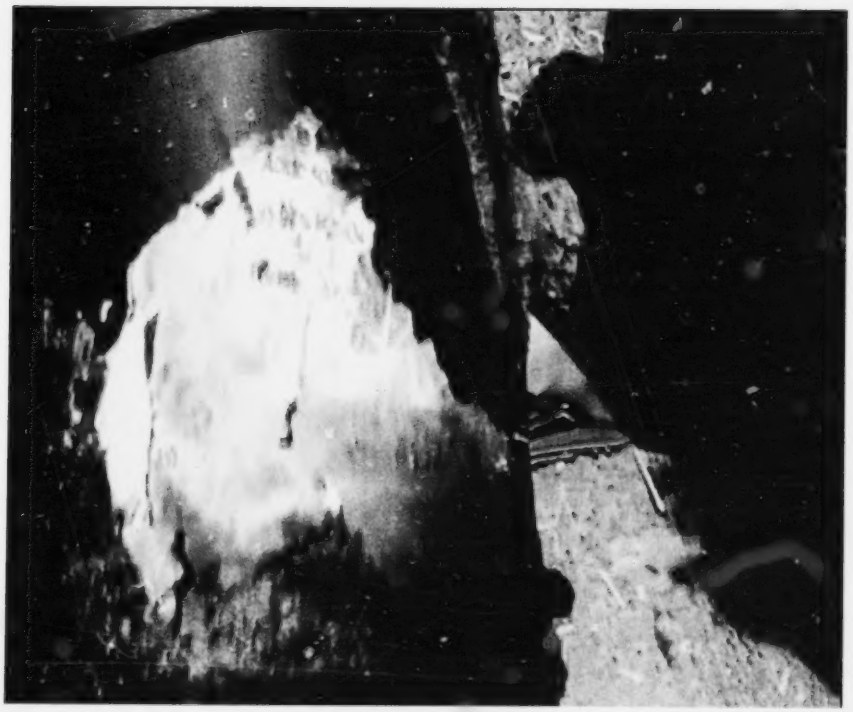
Appendix 19

A sketch by one interviewee of an improvised barrel bomb containing toxic chemicals. A screen-grab of a similar improvised barrel bomb containing toxic chemicals from a video provided by another interviewee. Among the smaller containers, only 97-98% purity H2SO4 with containing black bottle is labelled.



Appendix 20

Contents of various containers. The yellow container has a caked yellow powder. The black container has sulfuric acid as marked on the label.

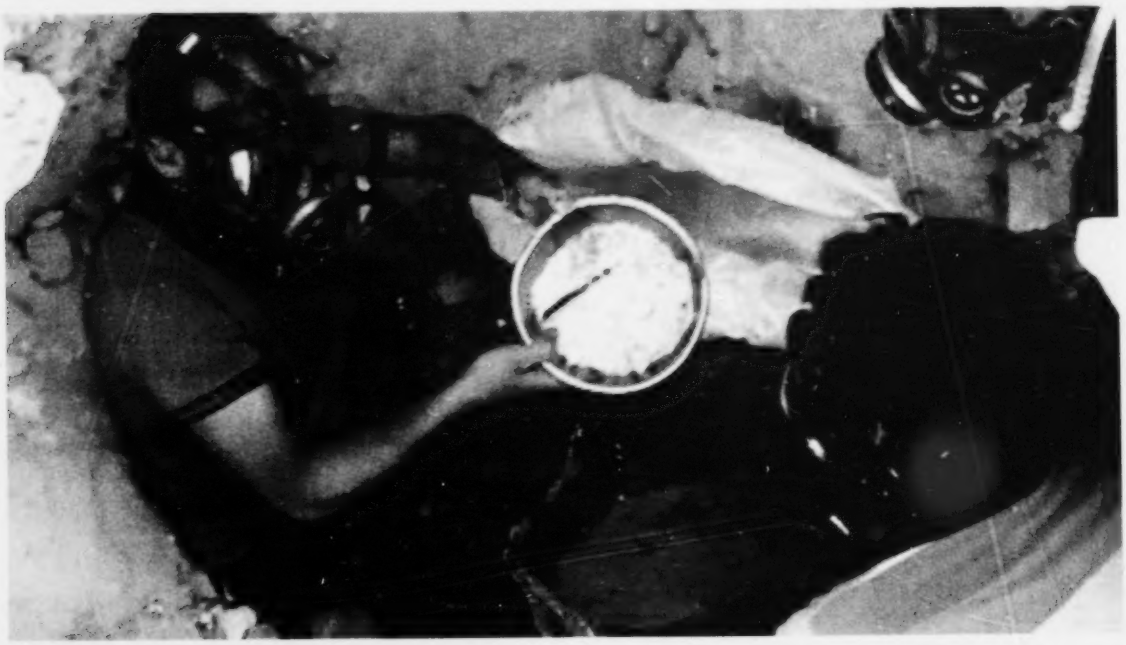


Appendix 21

Measurements of the impact crater from the first barrel bomb. The diameter of this crater is approximately 360 cm and the depth is approximately 140 cm. The lack of damage on the surrounding walls around the impact point can be noticed.

Appendix 22

The dismantling of a barrel bomb. Screen-grabs taken from available video. The toxic gas cylinder is tightly enclosed in outer barrel, the space between the gas cylinder and the outer barrel filled with light yellow powder; and multiple blue detonation wires between the valve of the cylinder and the base can be seen.



Appendix 23

Screen-grab from a video provided by an interviewee showing the yellow cloud that rises to height of approximately 50 m after impact of barrel bomb containing toxic chemicals.

Appendix 24

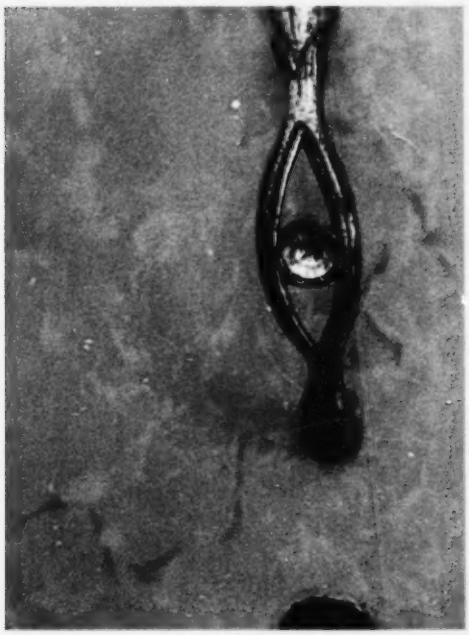
The first picture, a screen-grab from a video provided by an interviewee, shows the leaves of trees that faced the brunt of the released gas. They are dried, have turned yellow, and wilted. As stated by one interviewee "it appeared the trees had never been watered". The second picture, a screen-grab from a video provided by an interviewee, shows the fallen fruit from the trees. Also notice the unusually large number of tree leaves that have fallen. This picture is a snapshot from a video showing the incident from the month of April.

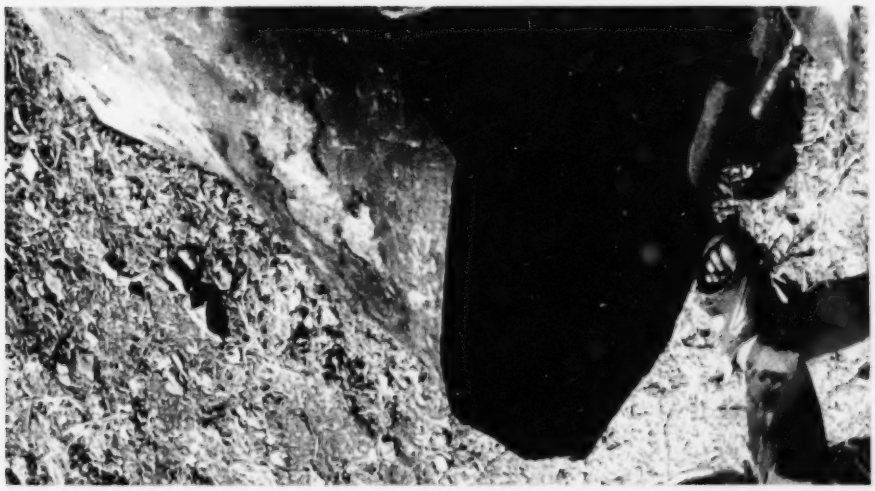
Appendix 25

The dead birds and animals. There is lack of physical injury, despite being in the immediate vicinity of the barrel bomb's impact. These pictures are screen-grabs from videos provided by interviewees.

Appendix 26

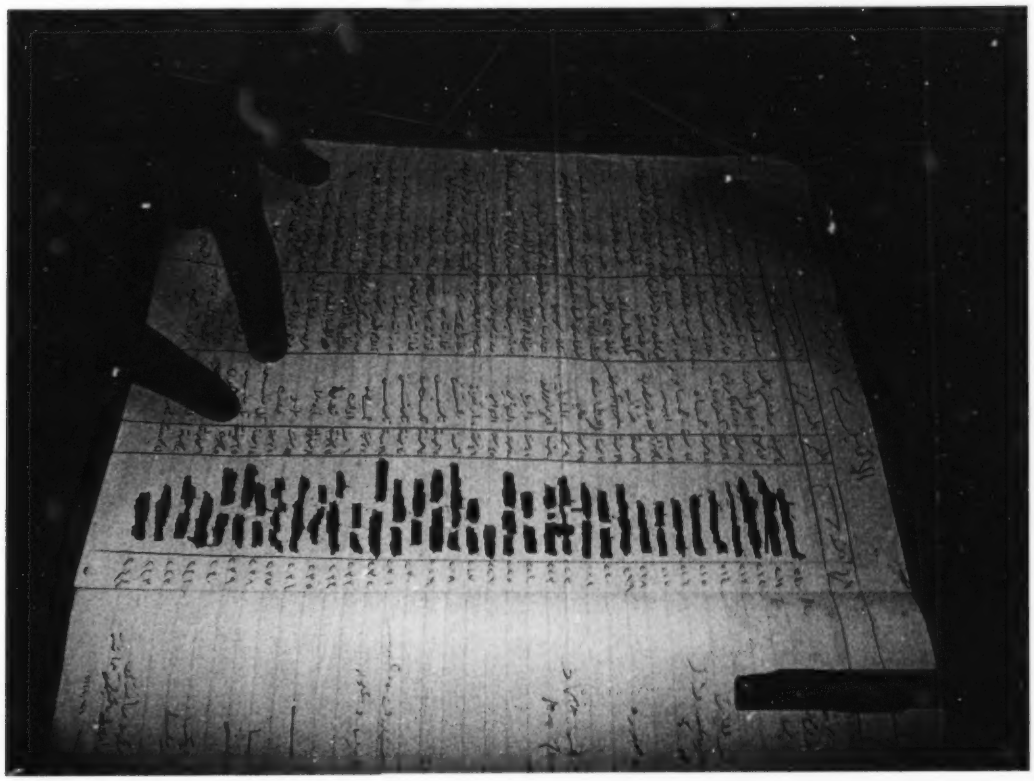
The first picture, provided by an interviewee, is a photographic comparison of two door handles from the same house where the barrel bomb impacted. The blue-greenish deposit (possibly copper chloride) appeared after the attack by the barrel bomb containing toxic chemicals, on one of these copper/brass door handles. The second picture is a screen-grab from a video provided by an interviewee in whose house the munition impacted, shows the unusual rusting of an outer barrel that was also described by an interviewee. This is possibly caused by the corrosive effects of chlorine.





Appendix 27

The patient register from one of the hospitals, documenting the name, age, gender, address, diagnosis, etc. of casualties exposed to toxic chemicals. This document was provided by a treating physician.

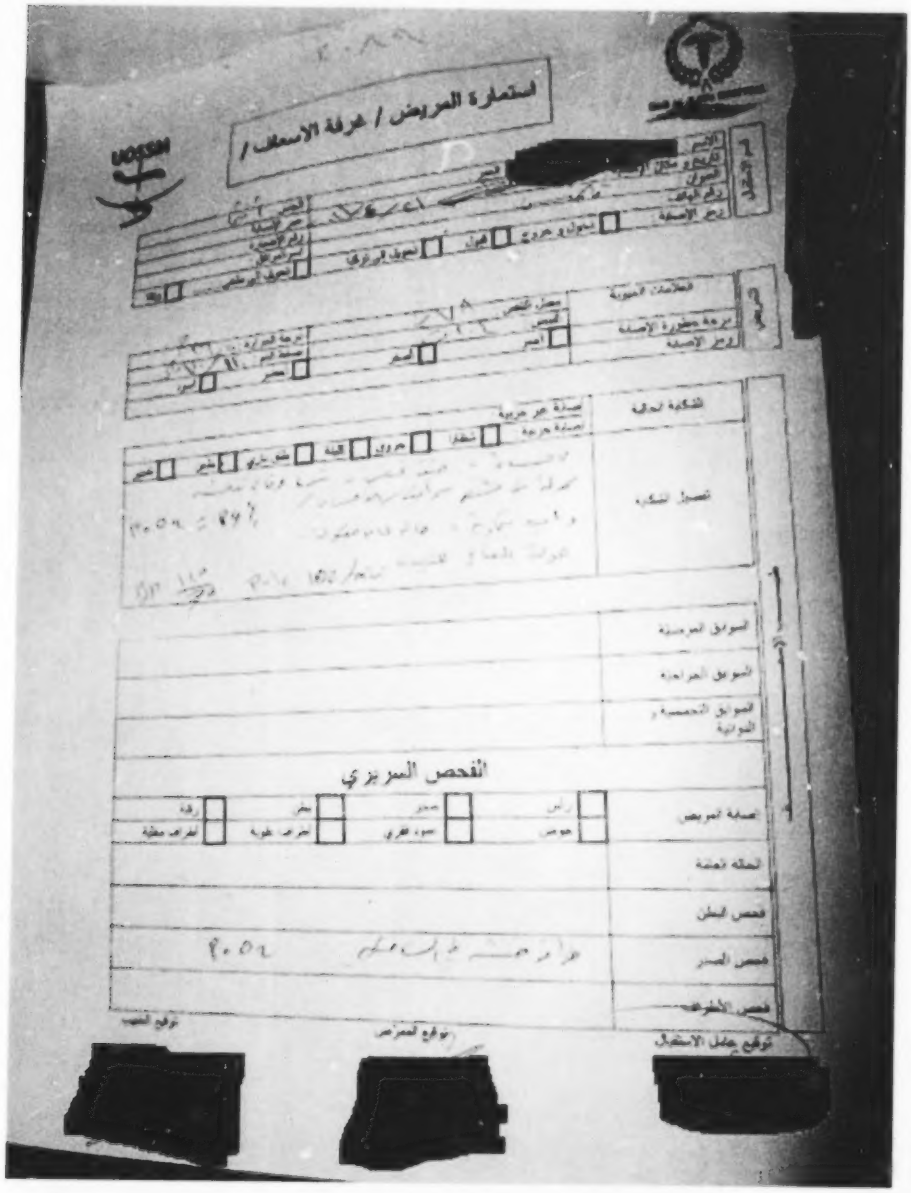


Appendix 28

The first scanned picture is a patient referral form from Kafr Zita hospital. The second scanned picture is of physicians' daily round notes. These documents were provided by interviewees.

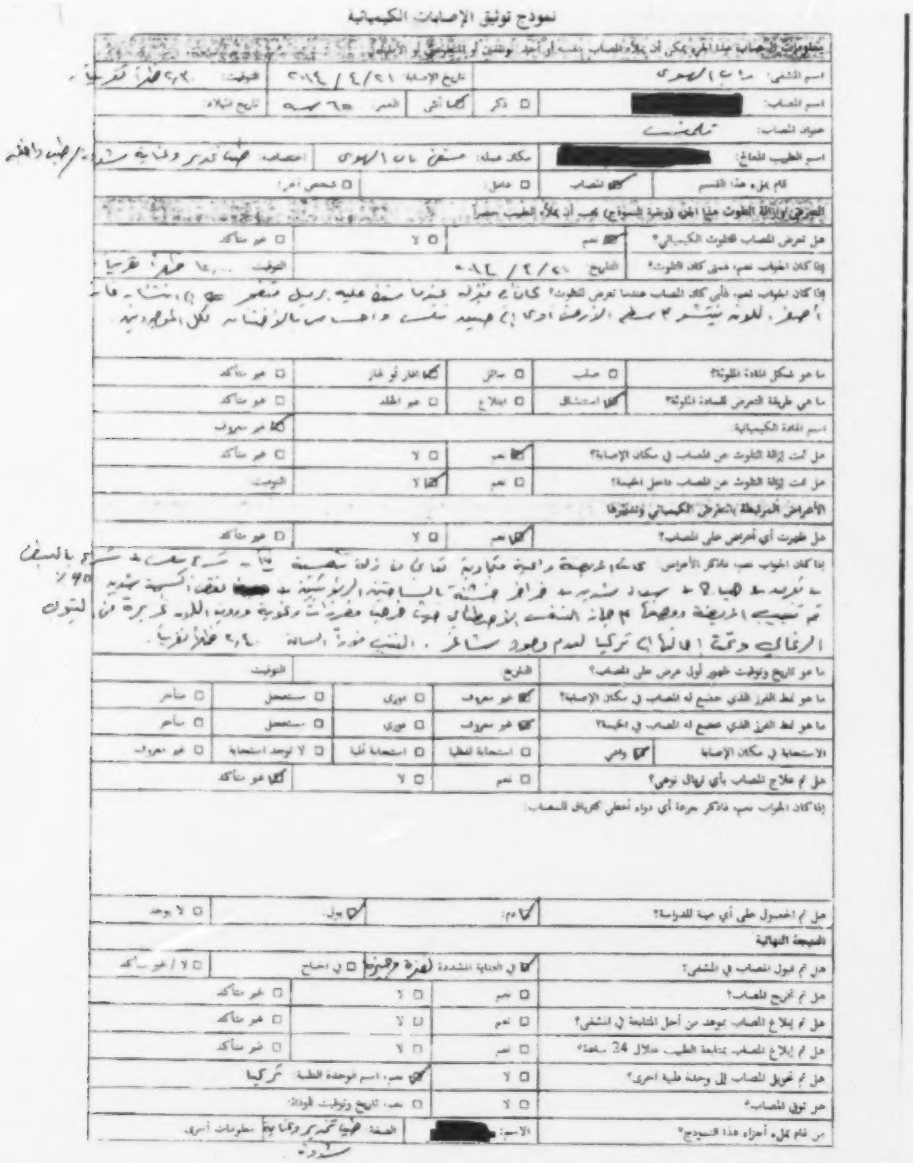
Appendix 29

A scanned picture of an admission form of one casualty to the hospital. This document was provided by an interviewee.



Appendix 30

A scanned picture of a form for documenting chemical exposure cases, filled in by one of the treating physicians. The translation of this form is provided on the next page.



نموذج توثيق الإصابات الكيميائية

اسم الشخص: [redacted]		☐ ذكر ☒ أنثى	العمر: ٦٥ سنة	تاريخ الميلاد:	
اسم الطبيب المعالج: [redacted]		مكان عمله: مستشفى باب الهوى			
قام بملء هذا القسم:	☒ المصاب	☐ عامل	☐ شخص آخر:		
هل تعرض المصاب للفلوت الكيميائي؟	☒ نعم	☐ لا	☐ غير متأكد		
إذا كان الجواب نعم، متى كان الفلوت؟	التاريخ: ٢٠١٤/٢/٥		الوقت: ١٤ عند الفجر		
إذا كان الجواب نعم، فأين كان المصاب عندما تعرض للفلوت؟					
ما هو شكل المادة المفلوتة؟	☐ صلب	☐ سائل	☒ غاز أو بخار	☐ غير متأكد	
ما هي طريقة التعرض للمادة المفلوتة؟	☒ استنشاق	☐ ابتلاع	☐ عبر الجلد	☐ غير متأكد	
اسم المادة الكيميائية:				☒ غير معروف	
هل تمت إزالة الفلوت عن المصاب في مكان الإصابة؟	☒ نعم	☐ لا	☐ غير متأكد		
هل تمت إزالة الفلوت عن المصاب داخل المنشأة؟	☐ نعم	☒ لا	الوقت:		
الأعراض المرتبطة بالتعرض الكيميائي وتدبيرها					
هل ظهرت أي أعراض على المصاب؟	☒ نعم	☐ لا	☐ غير متأكد		
إذا كان الجواب نعم، فاذكر الأعراض:					
ما هو التاريخ والوقت لظهور أول عرض على المصاب؟	التاريخ:		الوقت:		
ما هو نمط الفرز الذي صنف له المصاب في مكان الإصابة؟	☒ غير معروف	☐ فوري	☐ مستعجل	☐ متأخر	
ما هو نمط الفرز الذي صنف له المصاب في المنشأة؟	☒ غير معروف	☐ فوري	☐ مستعجل	☐ متأخر	
الاستجابة في مكان الإصابة	☒ ولعي	☐ استجابة الطبيا	☐ استجابة أولية	☐ لا توجد استجابة	☐ غير معروف
هل تم علاج المصاب بأي ترياق نوعي؟	☐ نعم	☐ لا	☒ غير متأكد		
إذا كان الجواب نعم، فاذكر جرعة أي دواء أعطي كترياق للمصاب:					
هل تم الحصول على أي صور للدراسة؟	☒ دم:	☒ بول:	☐ لا يوجد		
النتيجة النهائية					
هل تم قبول المصاب في المشفى؟	☒ في العناية المشددة (غرفة وفيروز)	☐ في جناح	☐ لا / غير متأكد		
هل تم تخريج المصاب؟	☐ نعم	☐ لا	☐ غير متأكد		
هل تم إبلاغ المصاب بموعد من أجل المتابعة في المشفى؟	☐ نعم	☐ لا	☐ غير متأكد		
هل تم إبلاغ المصاب بمتابعة الطبيب خلال 24 ساعة؟	☐ نعم	☐ لا	☐ غير متأكد		
هل تم تحويل المصاب إلى وحدة طبية أخرى؟	☐ لا	☒ نعم، اسم الوحدة الطبية: تركيا			
هل توفي المصاب؟	☐ لا	☐ نعم، تاريخ ووقت الوفاة:			
من قام بملء أجزاء هذا النموذج؟	الاسم: [redacted]	الصفة: طبيبة تعمل في تركيا	معلومات أخرى:		

This section concerning details of the victims can be filled either by the victim itself or by one of the personnel, volunteers or doctors					
Name of hospital: **Bab Al Hawa**		Date of exposure: **21 April 2014**		Time of exposure: **14:20 approximately**	
Name of victim: [redacted]	Male	**Female**	Age: **65 years**	Date of birth	
Address of victim: **Talmenes**					
Name of treating physician: **Dr [redacted] and Dr [redacted]**		Place of work: **Bab Al Hawa hospital**		Specialty: **Anaesthesiologist/intensive care specialist, internal medicine**	
This section was filled by		**The victim**		A worker	Someone else
Exposure and decontamination (This section and the rest of the form are to be filled by the physician and by no one else					
Was the victim exposed to chemical contamination		**Yes**		No	Not sure
If the answer is yes, when did the contamination occur?		Date: **21 April 2014**		Time: **12: 00** approximately	

If the answer is yes, where was the victim when he was exposed to contamination?
She was at home when a barrel bomb landed. This has led to the spread of a yellow gas over the surface of the ground, which caused difficult breathing and a sensation of suffocation for all the persons who were present in the house.

In what form was the contaminating substance?	Solid	Liquid	**Vapour or gas**	Not sure
What was the type of exposure to the contaminating substance	**Inhalation**	Deglutination	Transcutaneous	Not sure
Chemical designation		**Unknown**		
Has the victim been decontaminated at the place of exposure?	**Yes**	No	Not sure	
Has the victim been decontaminated in the tent?	Yes	**No**	Not sure	

Symptoms associated to chemical exposure and management of these symptoms

Where there any apparent symptoms on the victim	**Yes**	No	Not sure

If the answer is yes, describe the symptoms.
The patient was conscious and responsive but was suffering respiratory distress level IV+ increased respiratory rate+ rapid pulse+ perspiration+ agitation+ severe cough+ rhonchi and crepitation in lungs+ very low level of oxygenation (40%). The patient was intubated. Abundant pink excretions from trachea. The patient was referred to [redacted] as there was no place available. She was immediately intubated at around 14:40.

Date and time of the appearance of the first symptom on the victim			Date	Time	
What kind of triage did the victim go through at the place of exposure?		**Unknown**	Immediate	Urgent	Delayed
What kind of triage did the victim go through at the tent?		**Unknown**	Immediate	Urgent	Delayed
Reaction at the place of exposure	**Conscious**	Verbal reaction	Reaction to pain	No reaction	Unknow
Has the victim been treated with an antidote?	Yes		No	**Not sure**	

If the answer is yes, specify the dose of any medicine given to the victim as an antidote:

Was any sample taken for analysis?	**Blood**	**Urine**	None
Final analysis results			
Was the patient admitted to a hospital?	**Intensive care unit For a short period**	General ward	No/Not sure
Was the patient released?	Yes	No	Not sure
Was the patient given an appointment for follow-up at the hospital?	Yes	No	Not sure
Was the victim told to come back after 24 hours for further examination by the doctor?	Yes	No	Not sure
Was the victim transferred to another medical unit?	No	**Yes** Name of the medical unit: **Turkey**	
Did the victim die?	**No**	Yes Date and time of death	
Who filled sections of this form?	Name: **Dr [redacted]**	Function **Anaesthesiologist/intensive care specialist**	Other information

Appendix 31

A scanned picture of the vital signs record of a patient, provided by an interviewee. The initial recordings show a patient in distress, as recorded with poor oxygen saturation of 82%, tachycardia of 104 bpm, and hypothermia. All vital signs stabilise over a period of time, as expected after medical intervention.